

NetworkWorld

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December 6, 2004 ■ Volume 21, Number 49

Dorman on telecom Darwinism
AT&T boss David Dorman talks with *Network World* about:

- Not only surviving but thriving as what he calls the fittest of the IXCs.
- Pumping up sagging revenue through new business services.
- The possibility of being swallowed up in an acquisition.
- And what the FCC should do about intercarrier compensation.

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ALSO IN THIS ISSUE:

The future of the IXCs: Once-mighty interexchange carriers AT&T, MCI and Sprint now must evolve or face extinction. Three telecom experts share their insight into what it will take for these companies to survive. **Page 52.**

CATRINA GENOVESE

Municipal WLAN plans draw mixed reactions

■ BY JOHN COX

A public political spat in Pennsylvania last week threw light on potential issues that might stymie citywide wireless LANs intended to give residents and businesses broadband Internet access.

Such networks are pitting cities such as Philadelphia that want to

build their own Wi-Fi networks against carriers such as Verizon. Carriers, which fear losing customers and influence, are lobbying hard for laws that will block cities and towns from building such networks.

It's an issue that has network professionals trying to gauge

See Municipal, page 12

Cisco pushing Catalyst capabilities to the edge

■ BY JIM DUFFY

Cisco's latest wave of LAN switching announcements further blurs the demarcation between edge and backbone corporate networks.

Cisco last week unleashed more than 20 Catalyst products to push more core features, such as 10G Ethernet uplinks and sophisticated software services, into wiring closets. Core-like security and high availability are also now spreading to the edge.

Analysts liken the trend to the broadening intelligence of service provider networks.

"If you look at the way carrier networks are designed where the core itself is relatively dumb and all of the intelligence is distributed at the edge, it's just a

much more efficient way of doing it," says Zeus Kerravala, an analyst at The Yankee Group. "If you are talking about user policies and trying to do things on an individual port or user basis, you want to push that functionality out as far as you can."

One driver is the availability of Gigabit Ethernet to the desktop. PCs with integrated 10/100/1000M

■ **HP, Alcatel announce their plans on the 10G front. Page 14.**

bit/sec Ethernet jacks are now more prevalent than those without. Cisco's announcements included an IP phone with a Gigabit Ethernet link.

Another driver is that prices for 10G bit/sec Ethernet products

See Cisco, page 14

Edgy Catalyst

New Supervisor Engines for the Catalyst 6500 (right) and 4500 bring advanced features to wiring closets, such as:

- DoS attack mitigation.
- High-availability IOS image.
- 10G uplinks.



A Wider Net

Going once, going twice . . . gone for good?

Auctioneer sees sell-offs of company assets as a chance for 'rebirth.'

■ BY MICHAEL COONEY

A Stanley Bostitch heavy-duty stapler sold for \$10. A reception office couch and chairs went for \$205. One lucky bidder fetched an 866-MHz Dell PC for \$300.

It wasn't supposed to end this way for Appian Communications.

But don't look for Tom Noonan to shed any tears. The 47-year-old is in the business of selling the remains of failed high-tech firms, and earlier this fall he auctioned off what was left

See Auction, page 16



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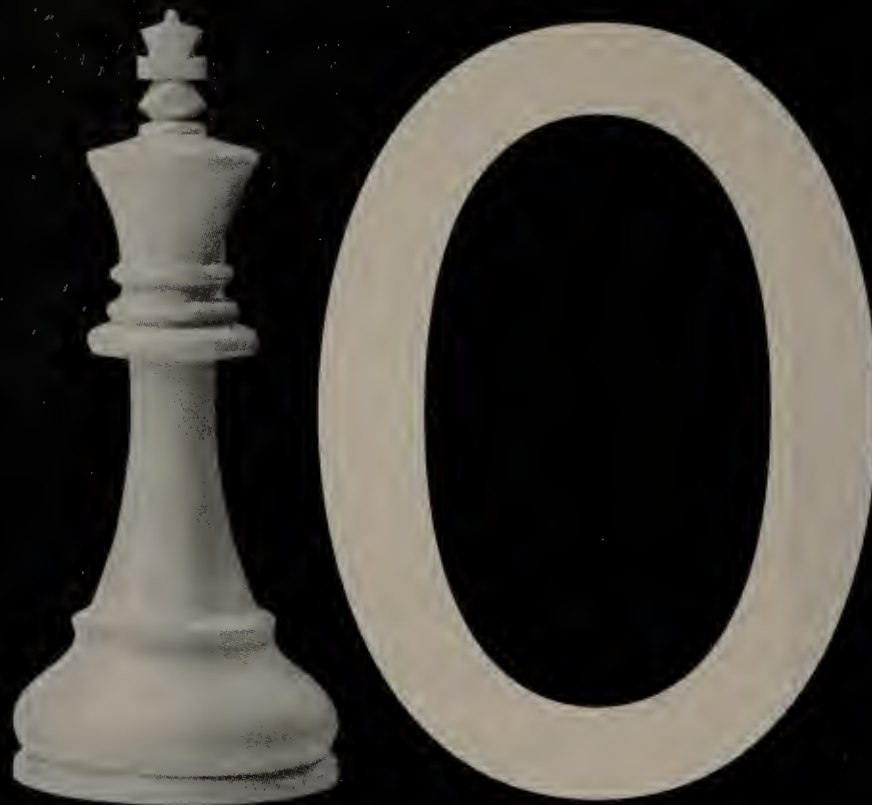
Microsoft Windows Server System makes it easier for Switzerland's Federal Department of Foreign Affairs (DFA) to manage the infrastructure serving their embassies and consulates in 156 countries. Here's how: By using Systems Management Server 2003 and Microsoft Operations Manager 2005, DFA can automatically update its 500 remote servers from a central location, saving over \$600,000 in travel expenses alone in the past year. They've also been able to reduce the time and cost of maintenance, boost user productivity, and find the time to better prepare for expansion. Software that's easier to manage is software that helps you do more with less. To get the full DFA story or to find a Microsoft Certified Partner, go to microsoft.com/wssystem



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CLEAR CHOICE TEST

Juniper's NetScreen Secure Meeting appliance offers secure Web conferencing. **Page 56.**

Novell serves up an operating system winner with SuSE Linux Enterprise Server Version 9. **Page 58.**

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Exclusive

Forum: 'Almost laughable'

That's one user's reaction to our story last week on carriers who want to charge for audits of their bills. Read what he has to say, then jump in with your thoughts. **DocFinder: 4938**

Network World Fusion Radio: Building a home network

Brian Underdahl, author of some 70 technology books including "Home Networking: A Visual Do-It-Yourself Guide," discusses some of the considerations one should think about when building a home network. **DocFinder: 4939**

Network Life online

Our exclusive coverage for your after-hours life continues this week with the latest breaking news and how-tos in fields from home entertainment systems to keeping the bad guys off your family's home network. **DocFinder: 4940**

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Columnists

Wireless Wizards

Getting management buy-in for a mesh architecture
The Wizards help arm a user with the information he needs to convince management to go for this more advanced form of wireless networking. **DocFinder: 4942**

Nutter's Help Desk

Networking for a small business
Columnist Ron Nutter helps out a user concerned about the complexities of networking as his company grows in size. **DocFinder: 4943**

Small-Business Tech

New search tools ease desktop frustration
Columnist James Gaskin says products from Google, Copernic and Wizetech Software find files in a snap. **DocFinder: 4944**

Telework Beat

New York, feds clash over telework
State's revised withholding guidelines stress the home isn't a viable workplace, says Net.Worker Managing Editor Tom Kistner. **DocFinder: 4945**

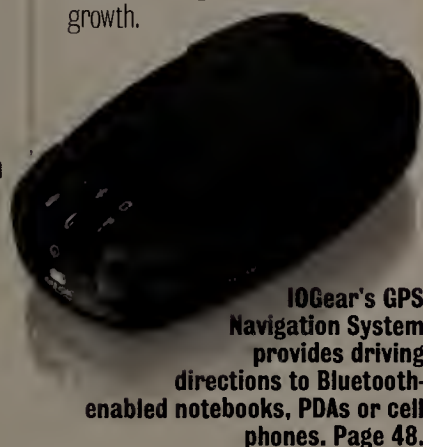
Seminars and Events

The 2005 IT Road Map Future Vision

Are you tasked with managing next-generation security? The new data center? WANs and LANs? Applications management? IP telephony? Wireless? Your new year begins early at this Welcome-to-2005 Tech Tour event. Qualified professionals attend free. **DocFinder: 4646**

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IOGear's GPS Navigation System provides driving directions to Bluetooth-enabled notebooks, PDAs or cell phones. Page 48.

News

Bits

IBM reportedly ditching PC business . . .

■ IBM plans to sell its PC business in a deal likely to be valued in the \$1 billion to \$2 billion range, *The New York Times* reported late last week. The newspaper reported that IBM is in serious discussions with Lenovo, China's largest PC maker. At least one other party is interested in the sale, which is expected to include IBM's entire range of desktop, laptop and notebook computers. Big Blue's PC business accounts for about 12% of its annual \$92 billion revenue, but rarely contributes more than a modest profit. IBM trails Dell (16.8%) and HP (15%) in PC sales, with 5.6% of the market, according to recent figures from Gartner.

. . . while landing big outsourcing pacts

■ IBM last week said it had sewed up outsourcing deals with two Danish companies, A.P. Moller-Maersk and Danske Bank, worth \$1 billion. The company did not break out the compensation from each deal. In a nutshell, IBM said it would provide Maersk, a container shipping company, with a 5-year deal to offer services such as management consulting and software development. Danske Bank, Denmark's biggest financial group, signed a 10-year deal for IBM to work its worldwide technology systems.

Sun, Microsoft issue report card

■ Sun and Microsoft last week provided a promised end-of-year progress report on the 10-year partnership they inked in April, but offered few details beyond the assurance they have made "small but significant progress" to foster interoperability between their products. The two said they are working on compatibility based on Advanced Micro Devices' Opteron-based servers and workstations. They also pointed out co-authorship of several Web services specifications, including WS-Eventing, WS-MetadataExchange, WS-Management and WS-Addressing, which has been submitted to the World Wide Web Consortium. The two said they are working on ensuring Sun support of Microsoft's storage APIs on Sun StorEdge 6920 storage arrays. Sun also reported it has achieved certification for its identity software running on Windows Server, and is working to validate Sun Java System Access Manager and Sun Java System Identity Manager for use in identity deployments with Active Directory as the credential store. The two companies, however, did not report any progress on unifying the competing standards they support for identity management.

HP reverses course on HP-UX map

■ HP has abandoned plans to integrate a number of advanced technologies it acquired in its 2002 purchase of Compaq into its flagship HP-UX operating system. The computer maker instead has decided to partner with Veritas Software to bring new file system and clustering capabilities to its Unix software, the two companies announced last week. HP had intended to integrate two features from the Tru64 operating system into its Unix product, which would have improved the scalability and reliability of HP-UX. Called the

COMPENDIUM

Don't toss that old PDA

Skyscape, which makes PDA-based systems for the healthcare industry, is collecting old PDAs to donate to doctors in East Africa. Skyscape will load medical reference text on the devices for distribution by a group working to fight AIDS in the region.

See how to donate at www.nwfusion.com, DocFinder: 4952.

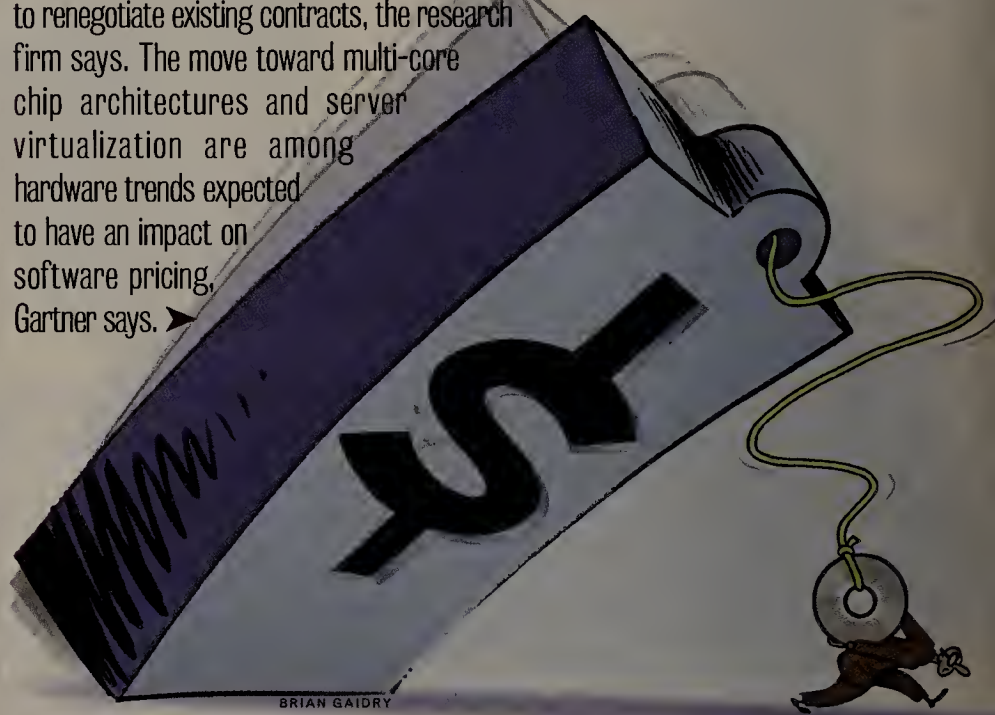
■ The Good The Bad The Ugly



Apache grows up. The Apache Software Foundation, a volunteer organization that oversees development of the popular Apache Web server, may soon have some full-time, paid staff, including an executive director. The group "is starting to outstrip the ability for people who are volunteers to be able to keep up with it and effectively manage it," says Brian Behlendorf, a co-founder and director.



Paying the price. If you think software costs a lot now, you haven't seen anything yet, according to Gartner. Companies worldwide could see their software licensing costs increase by at least 50% by 2006 unless they act soon to renegotiate existing contracts, the research firm says. The move toward multi-core chip architectures and server virtualization are among hardware trends expected to have an impact on software pricing, Gartner says. ➤



A real marketing hit. This might be the most desperate marketing scheme we've come across in the network industry, and we've seen some bad ones. A Web hosting and software development company has offered to pay \$10,000 to the first player or fan involved in the recent fracas during the Detroit Pistons-Indiana Pacers pro basketball game who is willing to permanently tattoo the company's logo on his or her fist. The company CEO said: "We do not condone or support this type of behavior under any circumstances. But chances are these people will be on camera again — at one point or another — so let's see if they want to launch a marketing career."

Advanced Filesystem and TruCluster, the features were scheduled to be part of the HP-UX 11i Version 3 product release, which was expected in 2006. HP said it had hoped to complete the work by year-end, but this deadline was pushed back because of the complexity of the integration work, analysts say.

Mozilla Thunderbird set for official debut

■ The Mozilla Foundation has unveiled the most complete preview version yet of its stand-alone e-mail application, Thunderbird, with the final product only days from release. The latest preview comes a few weeks after the launch of its Firefox browser Version 1.0, and is part of the open source software project's continuing efforts to chip away market share from Microsoft's dominant Internet Explorer (see related story, page 25). The release candidate of Thunderbird 1.0 e-mail management software, launched last week, is being positioned as similar to Microsoft's free end-user application Outlook Express, but without the user hassles of dealing with advertisements and spam. Before the official release of Thunderbird 1.0, slated for Tuesday, the group is offering the preview version of the free client for last-minute testing. Based on the Mozilla code base, Thunderbird 1.0 works with most operating systems, including Windows, Linux and Macintosh, the group says.

Lycos yanks anti-spam screensaver

■ Lycos Europe appeared to have pulled a controversial anti-spam screensaver program from its site late last week, after coming under fire from both security experts and spammers. The Web site previously distributed the "Make Love Not Spam" screensaver, which offers to turn the tables on spammers by overwhelming their Web sites with requests, no longer offers the program and now carries the message "Stay Tuned."

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NetworkWorld®

Q A AT&T's Dorman offers Darwinian take on survival

Perhaps nowhere is the decline of AT&T more visible than its payroll: A decade ago the company employed more than 300,000 — by year-end it'll be about 49,000. Just five years ago AT&T controlled cable, wireless and traditional telephone businesses aimed at consumers and enterprise customers. Now its core business is limited to the latter. AT&T remains formidable, with \$30 billion in revenue last year, but speculation about its future revolves more around acquisition than any return to the glory days. AT&T CEO and Chairman David Dorman recently spoke with Network World Senior Editor Denise Pappalardo and Associate News Editor Paul McNamara about the company's enterprise services unit, pricing pressures and survival in an ever-difficult telecom market.

How do you expect to find growth in business services?

When you're growing volumes but your unit prices are declining, it's pretty tough to actually get top-line change. ... We have new services and products that this year will produce over \$1 billion in new revenue. The number of telecom suppliers out there today will not go on forever. We don't think telecom is like the airline industry where zombie carriers keep coming back. Growth is an overall industry question that's not unique to AT&T. But we have to combat it not just by sticking with what we had before but also by venturing into new areas.

What do you see as the most promising of those new services?

Managed services and the IP VPN areas hold the most promise. We are doing things where we have substantial non-price differentiation benefits over our competitors. We have more points of presence, better security features, more and deep service-level agreements.

You've said AT&T will not be beaten on price for business services. How do you balance that commitment with the need to grow revenue?

The winner of a price war of this kind is not the last man standing but the last man profitable. We were not going to lead prices down, but we were not going to let competitors who were in more desperate situations simply use price to win and think that was a survivable strategy. ... We have a portfolio that has highly profitable services as well as new evolving services. We think pricing in the industry has reached a point where the replacement cost of the network these services ride on is so high, no one is going to invest more money to sell services at these prices. And only the largest-scale players can make money.

Who are AT&T's prime competitors? Are cable companies and local exchange carriers on the same playing field with interexchange carriers?

When we look at the enterprise services market and the nearest competitors we have on a revenue basis, they are MCI, Sprint and Qwest. In MCI's case they have their hands full managing post-bankruptcy, and we feel like we are competing effectively with them. Sprint, by its own choice, has emphasized its wireless business and allocated much more of its investment to wireless and almost nothing to its core long-distance business. Qwest is in a pretty different space as far as its financial position.

Over time we will certainly see the Bells show up more. But you have to make a serious commitment. If you want to take market share in the large-customer sector you have to offer the customer a reason to switch. There has to be an economic incentive, which means you have to give them an even lower price than guys like us today, which means you're going to lose money. Then you have to make an upfront investment in systems, people and products, and reach beyond your region.

What's your pitch to companies when trying to give them a reason to switch to AT&T?



We think we are offering competitive prices, financial stability and strength, and the broadest product array in the industry. There is a lot to like about doing business with AT&T because you can sleep well at night. We are not in a position where we are charging a massive premium for that. We are saying we'll give you the best service, great SLAs, consistent performance and you know we're going to be here.

AT&T is not charging a premium? Historically you've been known for doing just that.

I said we're not charging a significant premium. On a historical basis, the fact that AT&T did charge a premium is more true than it is today. We are clearly competitive in pricing.

There has been rampant talk about consolidation in the industry. What's your take?

I don't think anyone should be running their business with the idea that they want to be a target for acquisition. Our attitude is we know we have a clear focus now on what our mission is, which is serving businesses' telecommunications needs. We have the best franchise of business communications services in the world. We are the most profitable, we're a \$30 billion company, and we're a leader globally and domestically. When you compare us to AT&T of five years ago with a \$20 billion-plus consumer business, cable companies, wireless companies, we're clearly not that company anymore. But at the same time we have the notion that a business franchise like ours is

not just going to disappear.

How is your move toward consumer VoIP services going to play out?

We have a profound belief that the voice application is moving from being embedded in a local network infrastructure to being a services-layer application just like e-mail, search or photo exchange or a dozen other things you may do on Yahoo. Voice is going to be more complex because it is a peer-to-peer service by definition and the human voice has to be encapsulated and delivered in such a way that it's coherent. It's not predictable so you have to have an [Multi-protocol Label Switching], QoS network to manage it; otherwise you cannot control the outcome.

We have 25 million consumer customers. My view is we're successful if we convert some number of those. It's not going to be the 80-million-customer base we had in 1997, but having several million consumer VoIP customers can be a good business for us.

Did regulators force you out of the traditional voice business?

Yes. We had acquired 6 million customers. We actually acquired 10 million and the Bells took back 4 million. It was a fierce battle. We had 6 million customers using our service through the Bells. Congress wanted to bring competition to the local telephone business when it drafted the Telecom Act of 1996. It's hard to argue that we didn't do that because the Bells, before we showed up, did not offer bundles, didn't offer packages, didn't do win-backs, didn't send people checks. We created a lot of competition in places like New York, Michigan and California. Now some of those promotions are expiring, and prices are going up. There's a consequence.

If you were FCC chairman what would you do differently?

I would fix intercarrier compensation across the long-distance, [competitive local exchange carrier], ISP wireless and VoIP provider sectors. Each of those users of the local network pays a different rate. What's the logic for that? And is that sustainable? In the days when AT&T was first broken up and we were the only guys paying the Bells, it was a transfer of wealth from AT&T to the Bells for the purposes of keeping the Bells' investments going to the local network. What's the logic for a dial-up ISP paying 9 cents per hour when I'm paying 9 cents per minute in North Dakota to use exactly the same facilities?

Do you regret that AT&T sold off its wireless division?

I don't think regret is the right way to look at it. It was clear if we didn't do something about the total debt level, we were going to face a serious set of circumstances. All you have to do is look around to know what those were. You have to be able to pay back your debt, and we had \$5 billion a year in interest charges. We took the tough medicine, which was selling assets. Strategically I would love to have that company under the AT&T name and portfolio, but we did what we had to do. ■

Vendors automate change mgmt.

■ BY DENISE DUBIE

Management heavyweights are tackling customer IT service management concerns with product advances that could deliver on the promise of intelligent and automated data centers.

BMC Software and HP are touting new products they say will help network managers take inventory of IT assets, maintain up-to-date configuration databases and automatically track changes that could affect service levels.

BMC this week is scheduled to unveil IT Discovery Suite, which includes software gained through its acquisition of Marimba. HP last week introduced OpenView Automation Manager, incorporating technology acquired from Consera and Novadigm. Automation Manager lets network managers build models for IT components and automatically maintain them, HP says.

The new products are expected to help customers cut costs through automation, remain compliant with regulatory requirements and keep distributed IT components working toward the goal of supporting business-critical applications.

Dubbed change and configuration management (CCM), such software's purpose is twofold. On the configuration side, it identifies, records, tracks and reports on IT assets such as applications, servers, switches and firewalls. On the change side, the software ensures all changes made to IT components "are carried out in a planned and authorized manner," analyst Jean-Pierre Garbani says in a Forrester Research report.

CCM software includes a centralized management console and database repository, which gets updated from information gathered across a network either through distributed software agents or scheduled scans on servers and devices. Ideally, the software lets customers identify when configuration changes will cause a service disruption.

"Without being able to measure the impact of changes made, I can't be sure what business applications or users are being affected by a performance problem, and that's bad customer service," says Todd Scharrad, manager of client services for the Greater Toronto Airports Authority in Canada. Scharrad uses a combination of FrontRange's Heat ser-

Change is hard

Change and configuration management CCM technologies present hurdles.

Challenge

To effectively manage changes made to systems and devices, IT managers must have a complete inventory of IT assets and configurations.

Maintaining a large configuration management database will become unwieldy and data stored there could become out of date.

Given the volume and variety of devices, making sense of the configuration data and how it relates to network and application performance and availability will be difficult.

To relate application or network problems to configuration, users will have to integrate their CCM management tools with service desk software.

Strategy

Companies such as BMC, Relicore and mValent offer products that perform an auto-discovery of all IT assets, collect configuration data and store it in a central repository.

Products such as HP OpenView Automation Manager can detect changes and automatically update the configuration database and take action based on policies, HP says.

Network managers might have to maintain separate databases for various IT assets, create models of the ideal state for IT components and determine a way to normalize the data so it can be correlated.

Process frameworks such as the Information Technology Infrastructure Library provide guidelines of how to incorporate CCM technologies into an overall IT service management strategy.

vice management software and HP OpenView products to automate change detection and incident management across 6,000 IT assets. He plans to roll out a complete configuration process with FrontRange products by July because, he says, CCM underpin larger IT objectives in his department.

"If a system can tell me what users will be impacted when I bring down a file cluster or when a switch fails, I can plan my IT tasks around what's critical to the business," he says.

Until recently, management giants BMC, Computer Associates, HP and IBM were relatively quiet on the CCM front. Vendors such as Cendura, Collation, mValent, Relicore and Troux made the first inroads with customers. Many of these smaller companies gained traction with customers despite the down economy because their software helps reduce manual labor and can improve IT service performance by fine-tuning applications.

The software lets IT managers see the logical and physical dependencies among applications, servers and devices, experts say.

"If you want to manage an IT service, you need to first define what it's made up of, how it's configured," says Glenn O'Donnell, program director at Meta Group. "CCM provides the underlying nuts and bolts you need to define

IT services."

IT service management vendor FrontRange in the next few weeks is scheduled to release Heat ITSM 5.0, featuring new software additions that help customers incorporate CCM processes into their service management systems.

Kurt Hansel, senior technical officer at JP Morgan in Lowell, Mass., uses Relicore's Clarity 4.0 CCM software, which is scheduled to be released this week.

Clarity tracks the financial firm's online platform, which supports real-time cash transactions, so network availability is critical. Hansel says by quickly identifying where in his network changes have been made, the software helps him speed mean time to repair for network and application problems.

"In the past, I'd have to log on manually to multiple servers and try to determine what was out of whack," he says.

Regulatory compliance concerns also have drawn customers to products that document actions taken on critical network devices. Network device CCM vendors such as AlterPoint, Dorado, Intelliden and Voyence attracted customers by automating data collection across multi-vendor devices ranging from switches and routers to security devices such as firewalls. The products would ensure networks were locked down with secure

configurations and keep tabs on those accessing the devices.

While automating tedious tasks and documenting accountability around compliance regulations are noted as key drivers for customer interest in CCM, for the big four management vendors the technology is a critical step in reaching their larger automated data center goals.

"CCM used to be something that should be done, but now it must be done and it will be core to any automated management product," says Judith Hurwitz, president of research firm Hurwitz & Associates.

In HP's case, OpenView Automation Manager can react to "business triggers," such as a bottleneck in a fund transfer transaction, by kicking off a pre-defined action based on service-level agreements. In this case, the software would compare the actual transaction against the model and, based on rules in the software, might allocate a new application server to ensure the transaction is performed in a specified amount of time.

Enhancing software with the intelligence to respond to business demand is part of HP's goal with its Adaptive Enterprise product road map. For its part, BMC says its IT Discovery Suite is one element underpinning its larger Business Service management strategy. ■

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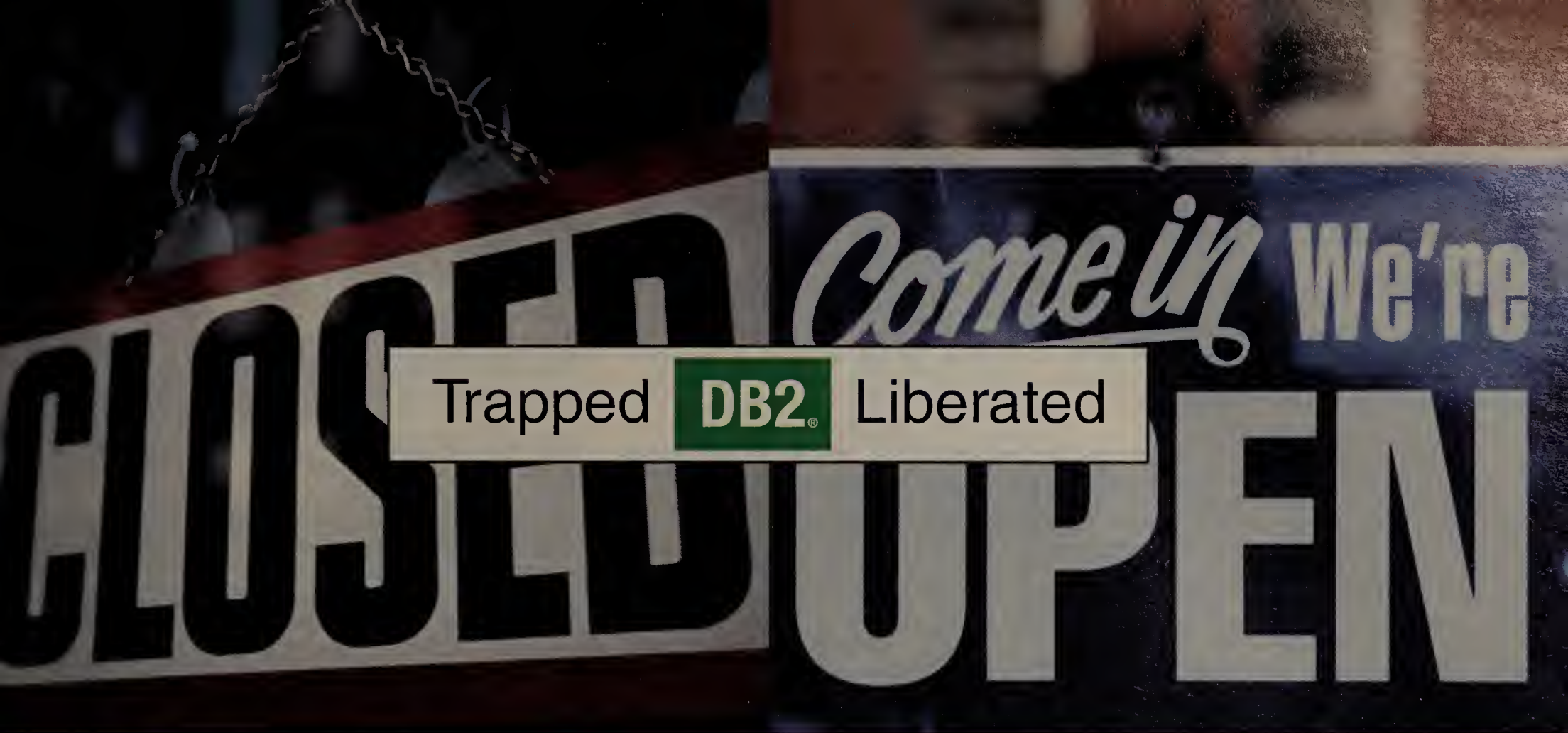
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Start-up readies server mgmt. pack

■ BY ANN BEDNARZ

The start-up founded by former BEA Systems chief executive Bill Coleman and a dream team assembled from Sun, Microsoft and Oracle executives is expected this week to unveil its first product: software that's designed to let users manage multiple Linux and Windows servers as if they were a single system.

The company, Cassatt, will roll out Collage, a package that tackles server management, provisioning and load balancing. With its Controller management module running on a Linux box, Collage works by discovering and inventorying a company's servers and then organizing those servers in tiers. It creates a set of operating system and application images, and deploys these images to the servers.

Two IT trends make the timing ripe for Collage — a proliferation of commodity servers and storage devices in the data center, and a migration from monolithic applications to loosely coupled applications built for service-oriented architectures, Coleman says.

Cassatt will enter a crowded market. Industry stalwarts such as IBM,

PROFILE: Cassatt

Location:	San Jose
Founded:	September 2003
Primary business:	Software for virtualizing distributed servers.
Key personnel:	Bill Coleman, founder, chairman and CEO (previously co-founded BEA); Mark Forman, executive vice president of worldwide services; and Rob Gingell, executive vice president and CTO.
Funding:	Unspecified, but reportedly up to \$50 million from primary backer Warburg Pincus.
Origin of company:	Named for late-19th century Impressionist painter Mary Cassatt.

HP and Sun, and specialists including BladeLogic, Egenera and Opsware, all are working on tools to more easily manage multiple servers and various platforms.

What Collage provides is a scalable way to manage all these resources without adding more complexity, Coleman says.

Cassatt came out of Unlimited Scale, a vendor that made Linux-based server-clustering technology. Warburg Pincus asked Coleman to examine the vendor's technology, then the venture capital firm bought Unlimited Scale, and Coleman took the helm of the new company.

Coleman's executive team hailed from Cray Research, Microsoft, Novell, Oracle and Sun. Coleman and company convinced 19 Sun engineers working on a remote distributed management console for Sun's N1 initiative to defect from Sun as a team. Another big hire was the federal government's former e-government czar, Mark Forman, who is Cassatt's executive vice president of services.

Usability was an important design consideration for Collage, says Rich Green, executive vice president of product development at Cassatt and a former vice president of developer platforms at Sun. Collage doesn't require changes to a company's IT infrastructure — applications, operating systems, system management software, hardware and networks can remain intact, Green says.

That same technology benefits Collage's provisioning prowess, speeding the time it takes to add a new machine, re-provision an existing machine, or detect and replace a failed machine, Green says.

Another important element is Cassatt's database system, which uses virtualization technology to keep data stored separately from applications yet accessed as if it were local.

Pricing starts at \$25,000 for the Collage Controller management software, which administers and distributes software to each server, plus \$1,500 per managed server. ■

Municipal

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what effect new Wi-Fi networks could have on their organizations.

"This [kind of network] would be of significant value to our [legal] advocates that do outreach work around the city at community sites and people's homes," says John Greiner, CTO for Legal Services of New York City. "If we had pervasive WLANs across the five boroughs, we could much more cost effectively mobilize our staff."

Greiner says the organization has been experimenting with cellular data services but he finds them too slow, too pricey, with spotty coverage. All these limitations potentially could be overcome with a city WLAN.

"My bet would be that pervasive WLAN will culture all sorts of innovative technology, applications and economic development, similar to the Internet," he says.

The organization's corporate network probably wouldn't change much, he says, unless the city WLAN was able to offer business-class service-level agreements and QoS.

Northern Illinois University has its own WLAN, and so far the neighboring city of DeKalb doesn't have plans for a citywide network. But Walter Czerniak, the school's assistant vice president for IT, says, "A city network would provide access for our students who live off-campus. In that light, we would support [such a net] in any way we could."

But potential problems include unpredictable performance based on user densities, unsolvable interference issues in the increasingly crowded 2.4-GHz band and a greater vulnerability of WLAN users to viruses or other attacks, which then could leak into corporate networks when employees log on.

"802.11b/g/a all ride over unlicensed spectrum, with no rules on what happens when you create channel interference for neighboring access points," says John Halamka, CIO of CareGroup Healthcare Systems in Boston. "As long as your [access point] power settings are within FCC guidelines, it's a Wild West show."

■ **Columnist Scott Bradner opines a bit sarcastic after reading law passed by Philadelphia lawmakers. PAGE 33.**

Wi-Fi city

A diverse collection of cities and towns are experimenting with their own 802.11-based wireless LAN services, often to provide residents and businesses broadband access to the Internet.

Lompoc, Calif. (pop. 40,000): Plans to offer fee-based wireless broadband service to residents in 2005.

Grand Haven, Mich. (pop. 11,000): Offers WLAN-based Internet access over a 6-square-mile area; currently beta-testing WLAN phones.

Rio Rancho, N.M. (pop. 52,000): Relaunched a citywide WLAN project to cover 103 square miles via a contract with Ottawa Wireless.

Granbury, Texas (pop. 6,000): Deploying a Wi-Fi network via local ISP Frontier Broadband, covering roughly 10 square miles; mixed use network for public access and municipal applications.

Washington, La. (pop. 1,000): Installing wireless mesh over 2 square miles for police use, including two wireless IP cameras, and general Internet access; security via digital certificates.

Los Angeles (pop. 3.6 million): Mayor Jim Hahn announced creation of a special panel to report on feasibility of a citywide WLAN to extend wireless Internet access to all residents panel to report by April.

SOURCE: MUNIWIRELESS.COM

There will be plenty of opportunity for interference."

Outdoor radios from vendors such as Strix Systems use power levels from 100 to 800 milliwatts, two to 16 times as much as is used by indoor WLAN access points.

The chances of such powerful radios being set up outside of corporate offices are growing. Even though Verizon essentially got its way with a bill signed last week by Pennsylvania Gov. Edward Rendell (carriers argue that municipalities creating nets enjoy unfair advantages in the form of taxpayer subsidies and the ability to issue bonds), Philadelphia was granted permission to carry on with its network plan.

These public networks are taking form in all kinds of communities (see graphic), typically using 802.11-based radios in the unlicensed 2.4- and 5-GHz spectrum bands. A flock of companies, ranging from giants such as Nortel to start-ups such as BelAir, Strix, Tropos and Vivato, offers wireless mesh radios designed for what they see as a market on the verge of exploding. "We're watching this whole development closely," says Doug Huemme, assistant vice president of marketing at Strix.

Generally, these outdoor radio nodes, mounted on utility poles or public buildings, include one or more radios that work like a traditional access point to connect to clients. But they also include one or more radios with special routing software that are

dedicated solely to high-bandwidth data backhaul.

The result is that nodes can be set up quickly, most of them without any backhaul cabling. Data traffic hops from one node to another, until it finally reaches a wired connection to a telco or service provider.

Not all municipal WLANs are intended for public access, or to replace or compete with broadband offerings from cable companies and service providers. Many are only for municipal employees: police, firefighters, building inspectors, meter readers.

But even in these cases, some officials are looking to extend them for residential and business Internet access. The city of Hermosa Beach, Calif., launched its Strix-based network first for Internet access and then began adding municipal applications. Another Strix customer, Jersey Village, Texas, took the opposite approach: It installed the network first for employees and now plans to extend it to citizens.

Either approach is fine with Doug Chick, a network manager in the Orlando area for a health-care company he asked not to name. He also runs thenetworkadministrator.com, a Web site for computer professionals. "Working within and managing an IT department is a 24/7 job, and I need 24/7 access to do my job," he says. ■



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Cisco

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continue to decline, although not as much as some would like.

"The number of standard Gigabit [desktop] interfaces presents a challenge for those of us providing the infrastructure," says George Kohrman, assistant director of network infrastructure at Western Michigan University at Kalamazoo. "Part of the problem is the expense of 10G is dropping but is still kind of expensive. None of the vendors really have a good inexpensive solution."

Among the key 10G products Cisco unveiled last week were Supervisor Engines with integrated 10G Ethernet interfaces and uplinks for the Catalyst 6500 and 4500 switches. The engines let the switches aggregate multiple 1G bit/sec Ethernet desktop links and drop them down to the core Cisco switch. The new engines also introduce 10G support over multimode fiber, which is a more commonly deployed fiber plant in corporations than single-mode. Multimode was used in older FDDI and Gigabit Ethernet networks.

The Supervisor Engine 32 for the edge 6500 is based on Cisco's Supervisor Engine 720 for the core 6500. It includes security features, such as denial-of-service mitigation, usually reserved for the core.

"You never know where you're going to get hit from," says Cisco customer Dean Coyle, network analyst at Central DuPage Health in Winfield, Ill.

The Supervisor Engine 32 includes a key element of Cisco's wireless LAN offerings that could presage a drop in the entry price of a Cisco WLAN network.

Cisco's WLAN offerings now require a Catalyst 6500 with the Supervisor 720 and a WLAN switching module (WLSM), notes Joel Conover, an analyst at Current Analysis.

"Together this stuff makes about a \$50,000 package, which is the cost to get into Cisco wireless before you start even buying" access points, Conover says.

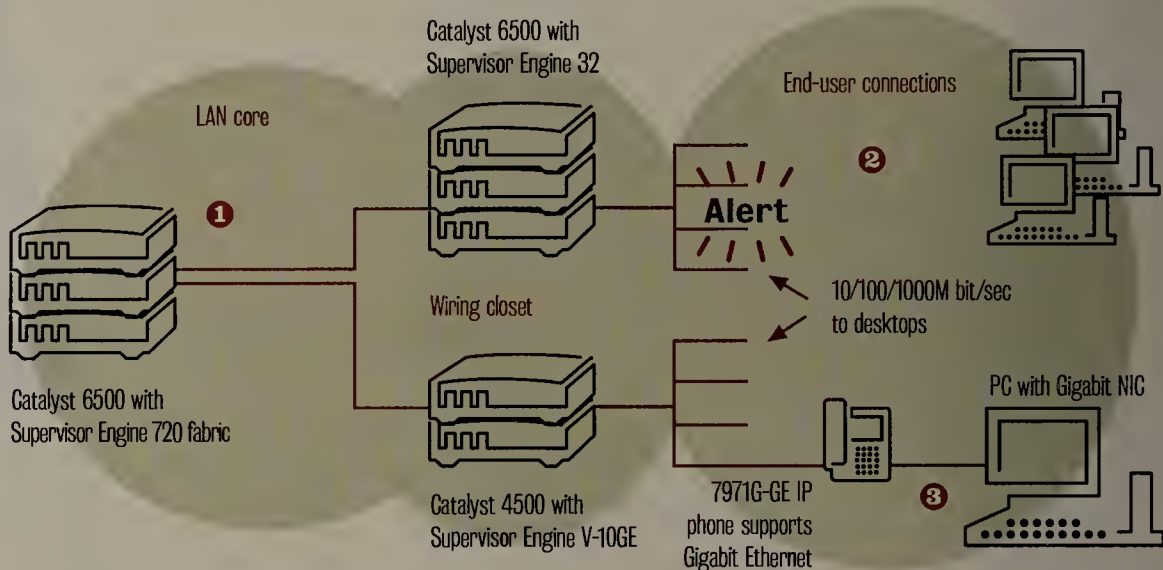
He says the Supervisor Engine 32 embeds code that's required for use with the WLSM. Cisco could subsequently add code to the WLSM to support the Supervisor Engine 32, which would drop the entry point into Cisco WLANs by \$10,000, Conover says.

"Most of the other [WLAN] solutions in the market top out at \$8,000," he says.

With the Supervisor Engine 32, Cisco is the first among its high-end peers — 3Com, Alcatel, Extreme Networks, Foundry Networks and HP — to build 10G ports into a switch fabric module, observers note. They have approached this core-to-closet architecture by pushing fixed-

Closet upgrades

New Cisco Catalyst switch modules push more features to chassis in wiring closets.



1 New switch fabric modules for the Catalyst 6500 and 4500 have integrated 10G Ethernet ports for uplinking directly to a core switch. This architecture frees up slots on the switches for more end-user port connections, Cisco says.

2 New Catalyst 6500 modules provide 10/100/1000 and PoE, while letting users detect bad network cables.

3 The new 7971G-GE IP phone lets PCs link to the LAN at Gigabit speed through the phone.

HP, Alcatel rev up new switches

■ BY PHIL HOCHMUTH AND TIM GREENE

HP this week is expected to announce its strategy for building enterprise LANs with emphasis on strong security and advanced services in edge devices and with less feature-laden 10G Ethernet boxes in the core.

Analysts say this Edge Fabric architecture — based on technology HP acquired from Riverstone Networks — more resembles carrier networks, in which big, "dumb" boxes in the core move packets among edge boxes, where services are delivered. This counters some traditional enterprise LAN models, in which Layer 3 routing, QoS and other features are supported in core boxes. Some observers say the approach could give corporate customers a more cost-effective and secure way to build LANs.

HP's ProCurve networking division will release the Edge Fabric switches in the second quarter of 2005. The boxes will include eight- and 16-slot chassis, with dual-port 10G and 16-port Gigabit line cards available. According to Mark Thompson, marketing manager for HP's ProCurve group, the boxes will cost about 40% to 50% less than the average 10G port — which is currently about \$8,000. The lower cost is because the boxes will support pared-down feature sets — Layer 2-4 switching and basic routing

protocols — and are not intended to run services such as WAN access, VPN or intrusion detection, or deep packet inspection.

"We aren't taking the Swiss-Army-knife approach" on the Edge Fabric boxes, Thompson says, referring to Cisco's Catalyst 6500, which can fill many roles.

Over the past two years, HP's ProCurve group has defined its intelligent edge strategy with wiring closet switches that support 802.1X and policy-based user authentication (ProCurve's Identity Driven Management architecture), wireless LAN switches and management software, QoS and network management features. In 2005, HP plans to introduce technology in ProCurve switches, letting them limit the bandwidth available to computers suspected of having a virus or worm.

With Edge Fabric, Thompson says, "the three-tier model" — LAN access, distribution and core layers — "mutates into a two-tier framework, where you'll have edge devices and interconnects between those devices."

By focusing on passing packets in the LAN core, Thompson says the emphasis is on availability, which is where the Riverstone technology comes in. Before HP's acquisition of the technology, Riverstone

See HP, page 72

and non-standard Power over Ethernet (PoE) capabilities, which juice up VoIP and WLANs. PoE is now found in Cisco's 6500, 3750 and 3560 switches for the edge, and a new 96-port RJ-21 LAN access module for the 6500.

Cisco has increased the bandwidth on its Catalyst 3750 and 3560 PoE-enabled switches to 10/100/1000M bit/sec (10/100/1000 PoE was previously available only on the Catalyst 6500). Cisco also has added its Time Domain Reflectometry technology — for detecting faults in network cables — into its 10/100/1000M bit/sec PoE modules for the Catalyst 6500.

"[Standards-based PoE] is critical for IP telephony and access point deployments," says Matthew Valenzisi, a network engineer at North Carolina State University in Raleigh, which is doing both. "We're trying to install one hot spot per month."

Competing PoE switches are offered by Dell, Enterasys, Foundry, HP and Nortel. Cisco is the only one offering an RJ-21 product that supports PoE.

The new Catalyst 6500 blade lets network technicians provide IEEE 802.3af-compliant power to 96 end-user Ethernet ports by connecting to a network patch panel via six telco connector cables (containing 16 Ethernet connections wrapped together). These cables plug into a patch panel that terminates the links across 96 RJ-45 ports.

But power is only on when

applications are available. To boost the uptime of these enhanced switches, Cisco is adding IOS software with Layer 2 non-stop forwarding and stateful switchover (SSO) to the Catalyst 4500. This follows the release in August of Layer 2 and 3 SSO and a non-stop forwarding IOS version for the Catalyst 6500.

Without SSO, "VoIP calls lose or drop their connection," says Central DuPage's Coyle. "Dropped connections are your biggest enemy."

Despite the breadth of Cisco's LAN barrage, users still want more.

"I really wish Cisco would put a few more things in [the 4500], like an IDS blade," says Bill Hamilton, director of enterprise architecture at Maritz, a Missouri application service provider.

All products are available now, with the exception of Supervisor 32 with the dual 10G Ethernet links. That is slated to be available in February 2005.

Catalyst 6500 products range from \$5,000 to \$20,000. The Supervisor Engine V-10GE costs \$20,000. Prices for the 3750 and 3560 switches range from \$4,800 to \$15,500. The Gigabit Ethernet phone — called the 7971G-GE — costs \$845.

Senior Editor Phil Hochmuth contributed to this story.



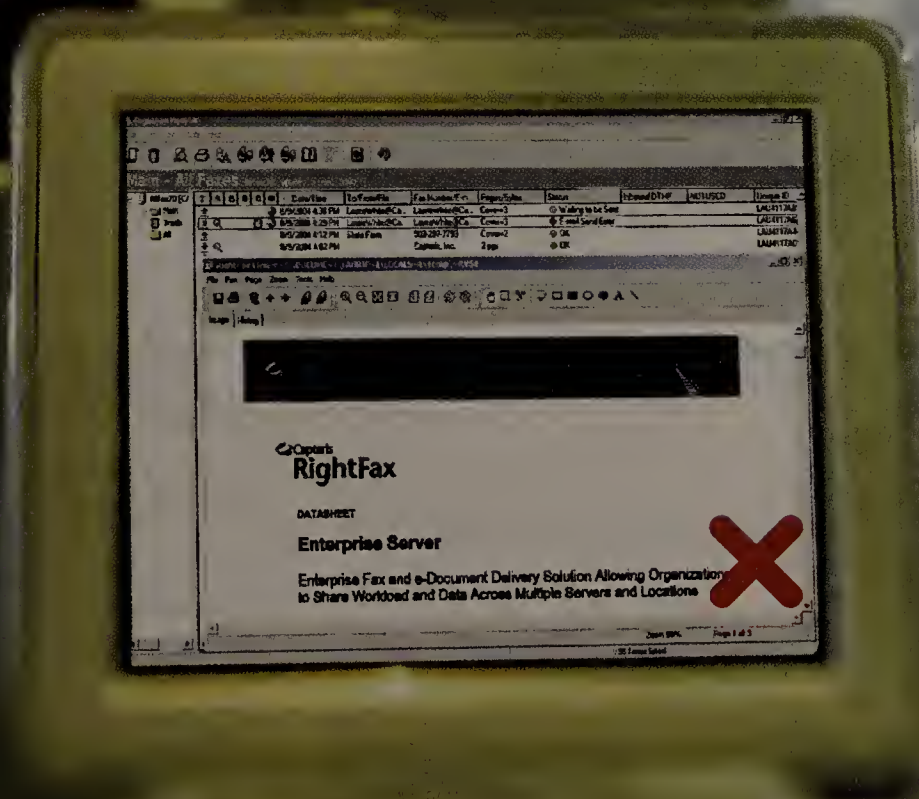
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Auction

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of Appian, an Acton, Mass., maker of Ethernet-over-SONET gear.

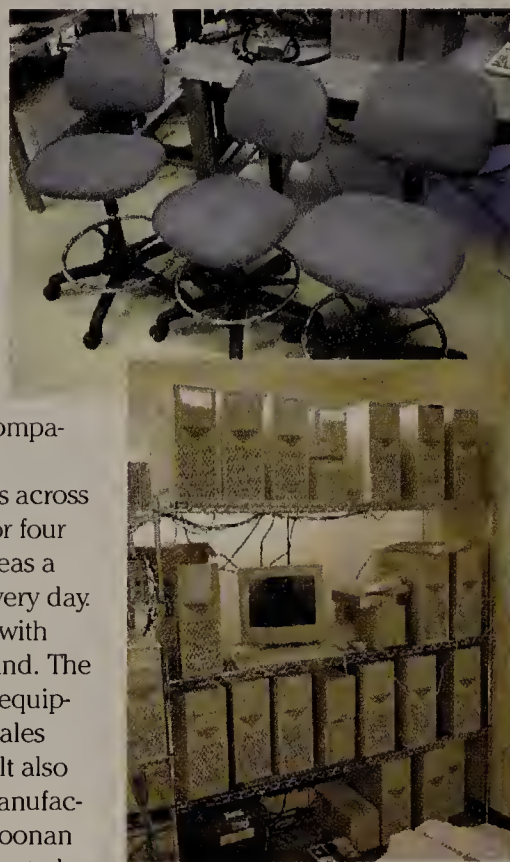
"I classify the auctions as more of a rebirth and an opportunity for other companies to grow," says Noonan, founder, president and chief auctioneer of Advanced Assets Services, a 10-year-old Woburn, Mass., outfit. "People who haven't seen each other in a while meet up at these auctions, and I have heard of companies being started from those meetings."

Noonan says the number of such auctions across the country has leveled off to about three or four per month in the past year and a half, whereas a few years ago you could find one almost every day. Advanced Asset Services operates globally with field offices in Connecticut, Utah and England. The firm has recovered more than \$1 billion in equipment costs from products and equipment sales from Cereva, AT&T and Bull, to name a few. It also has handled auctions for aerospace and manufacturing businesses, the firm's Web site says. Noonan says most of his company's business is generated by word-of-mouth recommendations and keeping close contact with the venture capital community.

Appian, which raised about \$80 million of venture capital during a five-year run that ended in January, outlasted many of its optical network equipment brethren whose fortunes peaked and then crashed along with much of the rest of the telecom industry in recent years.

The Appian auction had a business-like feel. Former company workers were nowhere to be seen. As Noonan says, "the human element" has largely been removed from companies once he is on the scene.

Eighty or so potential buyers milled about the company's offices, sat in previously used chairs and nosed



Among the items up for sale at a recent auction of Appian Communications' assets.

through vacant cubicles that in some cases still had little personal artifacts — such as the obligatory Dilbert cartoon — on the walls. On the floor, Appian Frisbees intermingled with framed industry magazine covers from 2000 touting Appian's potential success: Americas Network Hot 100, Upside Hot 100.

Stepping to the podium against a backdrop of gloomy, rainy skies northwest of Boston, Noonan went over the auction's ground rules. Among other things, he implored winning bidders for computer systems to delete any software or company information found on the machines. A sidekick, meanwhile, monitored a Webcast version of the

auction that enabled those not in the room to bid on items in near real time.

Then off Noonan went, breaking into an almost sing-song, rapid-fire number-calling technique that he credits to his experience during college as the lead singer for a local rock band called The Blowouts. "Now I just substitute numbers for lyrics," he says.

"Whaddayasay-we-gotta-\$200-bid on this Dell PC ... 200, 200, 200, c'mon-we-get-\$250? We got \$250. 250, 250, we got \$300. \$300, \$300, \$300 that's it? \$300? Going once. Twice. All yours in the front row," Noonan barked.

The auction featured 468 "lots" of items.

Cisco Catalyst 6500 routers, attracting offers in the thousands of dollars, topped the bidding, which lasted four hours. Noonan declined to talk about how much money any particular auction brought in but noted that when intellectual property is included, auctions can make "well into the six-figure range." His company did not offer Appian's intellectual property.

While Noonan doesn't keep track of what happens to goods sold, he says he likes to think they will help new entrepreneurs. "Auctions are sexy vehicles that attract a lot of people, people who want to be part of the next hot start-up," he says.

Others agree with that assessment — particularly in the hotbed of start-ups that is Massachusetts.

"The equipment that you get from these auctions is a great way for a new company to jump-start their offices and labs. Given all the start-ups in Massachusetts over the years, I'm sure that some of the gear — lab benches, etc. — have been used by five or 10 different companies," says start-up veteran Chad Dunn, who most recently was with WaveSmith, a company bought by Ciena last year for \$178 million. "No question that these auctions serve an important function in the high-tech ecosystem here in the area." ■



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HP adds sharing components to identity platform

■ BY JOHN FONTANA

HP last week added a new piece to its identity management lineup that is designed to let companies share identity information across corporate boundaries.

HP OpenView Select Federation, a gateway server that lets users share identities with business partners using standards-based protocols, is expected to ship early next year.

The company is licensing the technology from Trustgenix, which develops so-called identity federation software. Federation lets user credentials validated on one partner network be used for access to services on another.

HP's identity management lineup includes Select Identity, provisioning software that it acquired when it bought Trulogica in March, and Select Access, Web access management software it acquired from Baltimore Technologies last year.

Select Federation rounds out

Identity platform

HP last week added identity federation software to its identity management lineup.

Software	How acquired	Features
Select Access	Acquired from Baltimore Technologies	Web-based single sign-on; automated network and resource discovery; support for Security Assertion Markup Language.
Select Identity	Acquired Trulogica	Centralized provisioning; integrated workflow; password management; delegated administration.
Select Federation	Licensed from Trustgenix	Support for multiple federation protocols; single sign-on/single logout; session management; online activation/provisioning; privilege management.

HP's identity management suite.

"At this point we consider ourselves a mainstream identity management suite player with access management, provisioning, user management, single sign-on and federation capabilities," says Sai

Allavarpu, director of product marketing for IT service management and identity management.

However, analysts say the company still lacks pieces.

"They need a metadirectory component to actually round out

their suite," says Earl Perkins, an analyst with Meta Group. "With that they probably have all the makings of a full-service offering."

Others say HP is missing pieces such as password synchronization.

Competitors include IBM, Microsoft, Novell, Oracle and Sun.

In October, IBM formed a partnership with Ping Identity and promised to recommend to IBM's smaller customers Ping's Ping-Federate server so they can integrate with larger partners that use IBM's Tivoli Federated Identity Manager. Last year, HP and Ping partnered to develop SourceID, which is open source identity federation software.

In July, Oracle acquired Phaos, another federation software provider, and plans to add those wares to its Oracle Identity Management Solution.

HP plans to offer Select Federate in two versions. The Enterprise Edition is designed for corporate use. A Premium Edition is for telecom, mobile and business-to-

consumer usage.

Select Federation includes a privacy manager so users can specify which attributes of an identity they want to share. It also supports multiple protocols and multiple protocols versions, including Security Assertion Markup Language 1.1 and 1.0, Liberty Identity Web Services Framework, Liberty Identity Federation Framework 1.1 and 1.2, Liberty Enabled Client Proxy, and Liberty Extended Profiles. Trustgenix plans to add support for WS-Federation, a protocol under development by IBM and Microsoft, but has not said when that will happen.

Select Federation integrates with directories that support Lightweight Directory Access Protocol and is Java-based software that will run on HP-UX and Sun Solaris. HP is developing a Linux version.

The Enterprise Edition costs \$25,000 per federated application; Premium Edition is \$50,000 per federated application. ■

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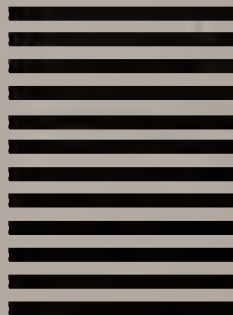
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High Density Configuration (shown above)

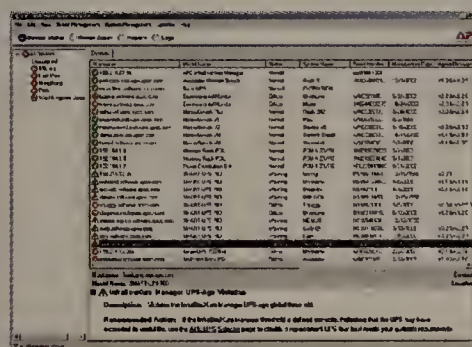
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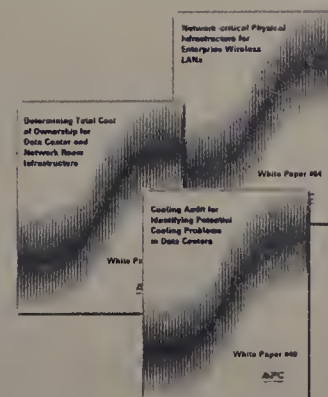
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Net Infrastructure

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InfoExpress simplifies security devices

■ BY TIM GREENE

InfoExpress is merging its LAN and WAN access-control appliances into one prod-



uct that will let customers simplify local or remote network access policies.

Called CyberGatekeeper, the gear comes in two models, CG 1000 and CG 2000, and can check out 50 to 10,000 endpoints at once to see whether they comply with security requirements.

Until now, the devices were sold on the same hardware platform with either the LAN software or WAN software, but not both. The new configuration with both sets of software costs the same as each of the former configurations separately.

CyberGatekeeper devices sit on a corporate network and determine whether computers trying to gain access meet standards such as having updated anti-virus software in place, proper registry settings, operating system patches and the like. If not, the InfoExpress gear can reject access, restrict access to a limited network segment or trigger a pop-up that instructs users what upgrades the computer needs to meet



The 1U CyberGatekeeper will support 50 to 5,000 audited endpoints. The 2U device will support 250 to 10,000 endpoints.

security policies.

If the device is logging on remotely, CyberGatekeeper intercepts traffic between the VPN gateway and the firewall, dropping traffic from devices that fail the policy check. If it is a LAN device, it can enforce policies via LAN switches. The switches can reassign access privileges for the port the device is plugged into.

InfoExpress products perform tasks that overlap with those performed by Cisco's emerging Network Admission Control

(NAC) and Microsoft's announced Network Access Protection, that is, to secure endpoints — computers, handhelds, Internet-enabled phones — before granting network access, says Pete Lindstrom, a security analyst with Spire Group. InfoExpress says it plans to issue new software next year that supports NAC.

Lindstrom says vendors such as Sygate and Check Point via its Zone Labs acquisition support similar endpoint checks, as do many SSLVPN vendors whose gear screens just those devices trying to connect over the SSL VPN. "It's just-in-time security that can evaluate the client, has a quarantining capability and can direct the client to remediation," Lindstrom says.

The software for the devices now support Nortel switches. Previously, CyberGatekeeper supported only Cisco switches. The software also supports 802.1x port-level authentication, which makes it possible to

See InfoExpress, page 22

Bluesocket to secure branch WLANs

■ BY JOHN COX

Bluesocket this week is scheduled to uncrate a wireless gateway and a Web-based management application that lets network administrators remotely authenticate, secure and manage wireless LAN users in hundreds of branch offices.

The new gateway, the WG-400, works with any brand of WLAN access point and supports up to 50 users in a site. Users simply plug in the power cord, connect the access points and plug the gateway into the office WAN connection, such as a router or DSL modem. Then a network administrator at a corporate data center can configure the gateway, and set access and authentication policies, traffic priorities and bandwidth limitations.

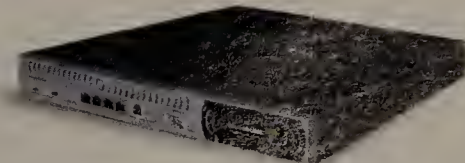
The results, says one beta tester, is a highly reliable, simple-to-use security gateway that works with any mix of access points and clients. "I can plug this into any network and enhance it without having to buy all new access points and [WLAN] switches. I can just use what a customer already has," says Ron Howell, senior architect with AT&T's Managed Solutions Group, the network integrator for AT&T's business clients. Howell's team has used a Bluesocket

gateway for years. "I've yet to have one come back" because of a failure, he says. Bluesocket's authentication has always been strong, according to Howell. Like the other models, the WG-400 supports a range of authentication methods (including media access control addresses, digital certificates, 802.1X/Wi-Fi Protected Access, RADIUS and Lightweight Directory Access Protocol) and encryption schemes.

Support for virtual LANs and Bluesocket's QoS features let Howell segment traffic, give priority to certain applications and regulate bandwidth use.

The WG-400 has four 10/100 Ethernet ports for four directly attached access points. Or one port can connect to a local hub or switch into which can be plugged up to five additional access points. A fifth Ethernet port links the gateway to the office's WAN connection. The gateway has a maximum throughput of 50M bit/sec for unencrypted traffic; that drops to 20M bit/sec when encrypted.

Bluesocket competes with similar gateway vendors such as Vernier and Fortress, and with WLAN switch vendors such as Airespace, Aruba Wireless Networks and Trapeze Networks. The latter



The WG-400 WLAN gateway from Bluesocket lets customers centrally secure, configure and manage wireless users at branch offices.

group markets boxes to centralize WLAN management and security, but typically these devices are paired with companion thin access points from the same vendor.

The gateway costs \$2,250 and is scheduled to ship in mid-December.

The new Blueview Management System, still in development, will be a software application pre-loaded on a rack-mounted, Linux-based server.

The current management software in the gateways requires one device to be designated a master, which can oversee about 50 other gateways. Blueview is being designed to manage hundreds of gateways. The new software will be able to detect new gateways, create a system of alerts as it monitors them, and schedule provisioning jobs such as software updates or changes in security policies. ■

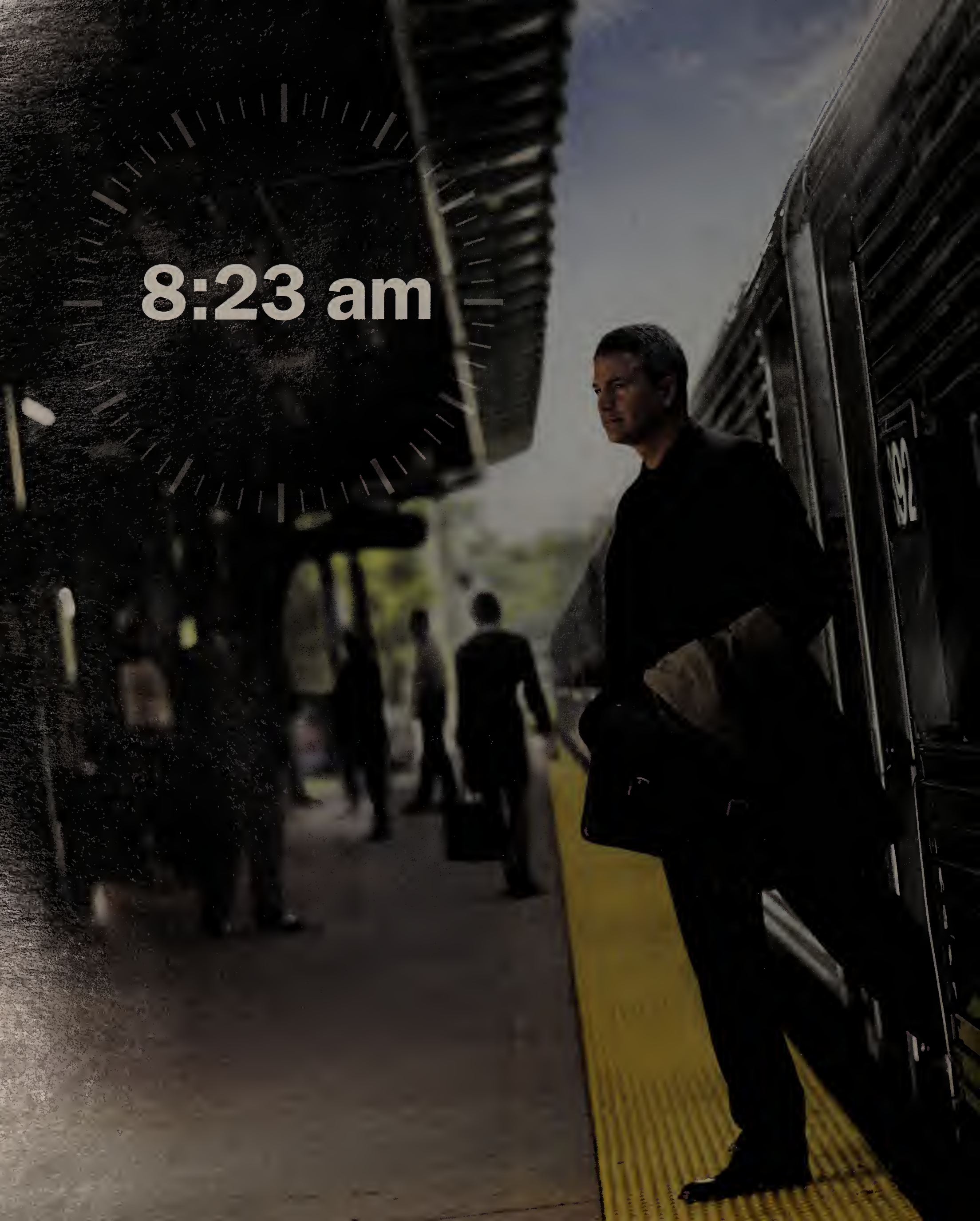
Short Takes

■ **Swan Labs** last week bought Web acceleration vendor **Pivia** with the intent of further speeding IP connections, particularly those between clients and Web servers. The Pivia device, renamed **NetCelera Web Accelerator**, ships separately from NetCelera Network Accelerator, but within nine months the two devices and their management software will be merged, the company says. The Pivia technology terminates SSL sessions from client machines accessing Web servers, caches repetitively requested data and streams lengthy documents to clients, letting them be opened as soon as the first page is downloaded rather than waiting for all pages to download. Swan wouldn't say how much it paid for Pivia.

■ **Enterasys Networks** last week expended its partnership agreement with **Siemens** under which Siemens Communications will integrate Enterasys' full line of Secure Networks products into Siemens HiPath Enterprise Convergence Architecture for VoIP. The companies also said they will collaborate on joint development of HiPath products and services. Siemens has been expanding its corporate network offerings recently. Earlier this fall the firm deepened its ties with Huawei Technologies to resell routers and switches from Huawei's Quidway product line.

■ Start-up **Breach Security** has announced **BreachGate**, an appliance intended for use as a passive monitor inside the corporate network to determine if an insider is attempting to hack a database or send sensitive data outside the organization. BreachGate costs \$39,000.

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TOLLY ON
TECHNOLOGYKevin
Tolly

No offense to any “real” programmers reading this, but you are a special breed — and you know it. Of all the various “sorcerers” in the IT trade, programmers have been the most mysterious for the longest time. But from what I’ve seen coming out of Microsoft recently, those days could soon be over. The level of sophistication in the soon-to-be-released ASPNet Version 2.0 combined with the drag-and-drop approach of Visual Studio 2005 puts sophisticated Web and database programming within the reach of many more IT professionals.

OK, so why should network professionals care? Some of you won’t, but I suspect that there are many of you who, over the years, have had visions of possible intranet appli-

The normal human being as programmer

cations that would help you do your job better — perhaps “inventory” applications of network assets.

Unless you were lucky enough to stumble upon the “perfect” package that implemented what you required, you typically were forced to justify the cost of using in-house programmers, with the cost and time delay that usually entailed, or live with a bare-bones “system” built around Microsoft Excel or Microsoft Access with a few forms or reports.

And, while Microsoft certainly prefers that users make SQL Server their database of choice, the company has done a fine job of making Access into a very powerful — and easy-to-use — database engine. And, while one can use Access “Data Access Pages” to build a Web browser interface into Access, it does not provide the flexibility offered by a full-fledged programming environment.

With the introduction of ASPNet 1.0 and now ASPNet 2.0, code-named “Whidbey,” Microsoft has, in my opinion, finally brought the power of programming into

the realm of smart people who are not full-time programmers.

The product is still in beta, but working code and the new interactive development environments are available at www.nwfusion.com, DocFinder: 4936.

In a way, it’s like the change that took place in PC internetworking with the introduction of plug-and-play features. Before that time, a network “wizard” was required to provide the most basic connectivity — the installation of a network interface card (NIC).

Remember what had to be done? If the NIC were ISA, you might have to set switches physically. In any case, the installation typically involved loading an array of software and then “hand tooling” entries in the config.sys and sometimes the autoexec.bat files to load the drivers — making sure that the software settings were in sync with the hardware settings. It could cost more to install the NIC than to purchase it.

Plug-and-play built the “smarts” into the system. Any user could physically plug in a

NIC to take over a job that used to require calling tech support or a value-added reseller.

Taking this same approach with programming is a much bigger job, of course. And, it has taken a much longer time. ASPNet 1.0 in 2000 was a giant leap forward.

It was a “revolution not an evolution,” and while existing developers might not have been happy to have to “relearn” the Active Server Pages environment (as it was a radical break with ASP 3.0), Microsoft deserves credit for taking a fresh look at the challenge of programming today.

Version 2.0, though, brings innovations such as Master Pages, code-less database access and, importantly, streamlined Web Development environment (DocFinder: 4937) that can trigger a flood of new development. Check it out.

Tolly is president of The Tolly Group, a strategic consulting and independent testing company in Boca Raton, Fla. He can be reached at ktolly@tolly.com.

Axalto unveils smart card powered by .Net

■ BY ELLEN MESSMER

Axalto last week offered up a smart card based on Microsoft’s .Net technology, which could make it easier for corporations adopting .Net for Web services to develop card-based security.

The Cryptoflex .Net card, which can provide two-factor authentication and e-mail encryption based on public-key technology, can be programmed using .Net tools, including Microsoft Visual Studio .Net, says Neville Pattinson, director of business development for Axalto. Until now, Axalto had based its smart cards — which are basically coprocessors and software on a plastic card — on either a proprietary operating system or Java.

“Before, [the developer] had to specifically be trained in a Java card environment, which created errors and inefficiencies,” Pattinson says. “With the Cryptoflex .Net card, it will be easier to program the server, client and card applications together.”

Axalto worked with the software firm Hive Minded to design the .Net card. It took more than a year to have it ready, largely because the .Net smart card footprint required 8K bytes of RAM, more than double the amount used in Java smart cards.

“We had to search for the right chip platform,” Pattinson says.

The .Net card, which can hold an X.509 digital certificate and run a variety of cryptographic processes, hasn’t yet been

implemented in any organizations. In contrast, there are millions of Java-based smart cards in use today.

Microsoft has announced its willingness to be an early adopter in a big way.

The company will swap out the Indala-brand smart cards, now used by more than 55,000 Microsoft employees for remote authentication to the network, to replace them with the Cryptoflex .Net smart cards, says Charles Fitzgerald, Microsoft’s general manager of platform strategy.

Fitzgerald says the .Net-based card will also give Microsoft the opportunity to test the smart card in applications other than remote-access authentication.

“With .Net we can put more applications on the card, such as perhaps using it for cafeteria credit for employees,” says Fitzgerald, noting that Microsoft will be looking at a range of possibilities for internal use of the Axalto cards next year.

Fitzgerald says Microsoft anticipates developers supporting .Net technology will make use of smart cards in the future. Microsoft began mandating employee use of smart cards for encryption-based, two-factor authentication after a security breach a few years ago involving a hacker break-in traced back to a stolen password.

Smart cards with X.509 digital certificates provide a stronger form of authentication, and Microsoft now issues a smart card to every employee for authenticating identity over the network or encrypting e-mail. ■

Strix to add outdoor WLAN mesh to product mix

■ BY JOHN COX

Wireless mesh vendor Strix Systems this week is set to unveil an outdoor product line designed to let users blanket spaces with wireless LAN connectivity while minimizing cable runs.

The product, called AccessOne Outdoor Wireless System (OWS), is designed to create a WLAN over a large area without having to cable each access point to a wired network. Instead, Strix’s routing software lets WLAN traffic find various wireless routes through the mesh of AccessOne nodes, hopping from one to another.

Besides running less cable, the scheme lets the network balance traffic load and keeps the network up if a node fails.

Each OWS node consists of two to six radios in a rugged enclosure roughly the shape of an oversized shoebox. The radios can be any combination of standard 802.11b, g or a radios, or proprietary radios in the same frequency bands, such as Motorola’s Canopy broadband radio.

One or more of the radios work just like any other access point: They connect with

WLAN clients such as notebook PCs or wireless VoIP phones.

But usually two 5-GHz radios are dedicated to creating the wireless back-haul mesh among the OWS nodes. Two radios maximize throughput.

Using a single radio can result in bandwidth dropping by as much as one half with each hop, a point being made publicly for some time by Francis daCosta, CTO and founder of another dual-radio mesh vendor, Mesh Dynamics.

Other rivals with mesh offerings include BelAir, Firetide, Nortel and Tropos. All of them, like Strix, are targeting public safety and other municipal wireless applications.

The OWS radio nodes come without antennas. Customers select third-party antennas to meet their requirements.

The OWS nodes can support 100 to 800 milliwatts, far beyond the indoor WLAN power level, which is typically about 50. The six-radio model with a high-gain antenna could cover an area of up to about 1 square mile, Strix says.

The new products will be available in early 2005. Pricing has not been set. ■

InfoExpress

continued from page 19

use any 802.1x LAN switch as an enforcement point for CyberGatekeeper.

The new release, called CyberGatekeeper 3.0, adds support for wireless LAN switches Airspace makes, making it possible to ensure devices connecting via wireless access points don’t violate security.

Also new with CyberGatekeeper 3.0 is

support for Juniper’s SSL VPN gear, making it possible to screen remote machines that are making SSL connections. Previously, the software would check devices equipped with Juniper’s SSL remote-access client.

CyberGatekeeper 1000 costs \$10,000 with a license for 50 simultaneous user devices and ranges up to \$250,000 for one that supports 5,000 user devices. CyberGatekeeper 2000 costs from \$30,000 to \$500,000 with support for 250 to 10,000 endpoints. ■

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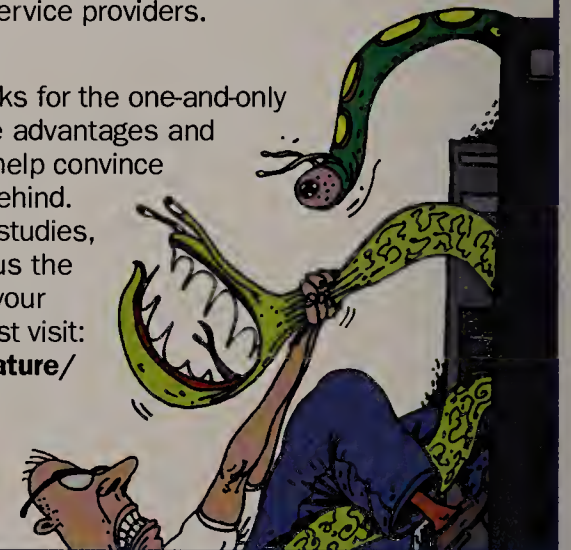
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Short Takes

■ **Sun** last week said it has agreed to purchase IT services company **SevenSpace**. With the purchase, Sun takes a farther step away from its traditional focus on supporting only its Solaris operating system platform and beefs up its support for competing operating systems such as Windows, HP-UX and AIX. SevenSpace, a 4-year-old company that specializes in remotely managing and monitoring IT systems and applications, was of particular interest to Sun because its managed services technology will let Sun's support organization provide service-level agreements for software from vendors such as Oracle, SAP and PeopleSoft on a wider variety of operating systems. The companies did not disclose financial details of the agreement.

■ The change to flash memory from dynamic RAM for **PalmOne's** new Treo 650 smart phone appears to have had the unintended consequence of reducing the amount of memory that is actually available to users. As a result, PalmOne plans to offer a free 128M-byte expansion card to Treo 650 purchasers to get around the problem. Small files, such as contacts or tasks, now must be stored in chunks that are much larger than the actual files. This means that the same files a user stored on a Treo 600 might not all fit on the Treo 650. The Treo 650 was released last month through Sprint and palmOne's Web site.

■ Consulting firm **Connect Computing** and **Mandrakesoft** have formed a partnership to offer Linux server software to small businesses. The two have come up with Mandrakelinux Dedicated File Server, a Samba file server, and Mandrakelinux Dedicated Email Gateway, a Postfix e-mail gateway that ships with Spam-Assassin and virus protection software. All the tools needed to get up and running install as part of a single process, and the software is priced at less than \$1,000. The Mandrakelinux Dedicated File Server features Samba 3, which is compatible with Windows.

IT execs eye Firefox with hope

■ BY ANN BEDNARZ

The latest release of the open source Web browser Firefox has spurred millions of downloads and a groundswell of anti-Internet Explorer sentiment, but IT executives question the role Firefox will play in their enterprise environments.

There's a lot that has to happen before Firefox is enterprise-ready, users say. "It needs to be made compatible with the sites and applications I use every day," says Eric Beasley, senior network administrator at Baker Hill, a Carmel, Ind., service provider that administers online loan applications for banks. "That will require a lot of work for both the developers of Firefox and the developers of Web applications."

Beasley has tried Firefox and uses it daily to browse the Internet. But for the business, there's no switching. "We would not be able

to throw [Internet Explorer] out at this time. We are an [application service provider], and our applications are written specifically for" Internet Explorer, he says.

Likewise, Daniel Basse says he is concerned that if Internet Explorer were replaced, it could disrupt some Web-based applications that employees use. Basse is director of IS at Ridge Vineyards in Cupertino, Calif., which runs Microsoft applications that rely on Internet Explorer tie-ins such as Microsoft CRM and SharePoint.

"These features and [operating system] tie-ins are at the heart of the argument," says Basse, who has a test machine running Firefox. Microsoft-centric business applications can benefit from the tie-ins Internet Explorer has to those applications and hooks to Microsoft's operating system software. However, hackers can take advantage of those same mechanisms, he says.

"It's a double-edged sword — the same [Internet Explorer] features that make some in-house business applications work smoothly are being exploited from the outside by attackers to do evil," Basse says.

To make Firefox enterprise-ready, it needs scalable deployment and management features, Basse says. Microsoft Internet Explorer's Internet Explorer Administration Kit, Active Directory support and registry editing give Internet Explorer "an edge in large-scale deployments and allow for broad configuration enforcement," Basse says. "We wouldn't even think about doing a large-scale deployment of Firefox without these features."

Rob Enderle, principal analyst at Enderle Group, says Firefox at this point is suited for use by individuals, not large companies. "The kinds of things that need to be wrapped around the product — providing

See Firefox, page 28

■ ANALYSIS

Server virtualization is on the rise

Microsoft and smaller players getting into the act.

■ BY DENI CONNOR

While EMC subsidiary VMware has garnered the bulk of attention regarding server virtualization, a slew of vendors are looking to address what they see as rising demand for this server consolidation technique.

At the top of that list is Microsoft, which earlier this fall aired plans for Virtual Server 2005. Like other server virtualization technologies, Virtual Server 2005 lets users divvy up servers so that they can support multiple operating system instances and applications. The software, scheduled to ship next year, is based on technology obtained via the acquisition of Connectix early last year that works on Windows, Linux and Macintosh servers and workstations.

Also entering the market are a gaggle of lesser-known players, such as Leostream and PlateSpin, whose products offer management, security and other such capabilities for virtualized systems.

"Virtualization is moving from a niche market into the mainstream, especially since Microsoft entered the market," says David Crosbie, CEO of Leostream, whose software manages virtualization servers attached to storage-area networks (SAN).

But it is VMware, which EMC paid \$635

“Virtualization is moving from a niche market into the mainstream, especially since Microsoft entered the market.”

David Crosbie
CEO, Leostream

million to acquire earlier this year, that sparked the server virtualization movement. Recently, the EMC subsidiary held its first annual customer conference, where VMware and others announced the latest developments in server virtualization.


VMware announced that it would extend the capabilities of its Virtual SMP offering to dual-core and four-processor symmetrical multiprocessing servers. The company, which already offers dual-processor SMP software, is doing this for two reasons. First, VMware officials say that even though most server workloads run fine on two-processor servers, 15% to 20% of customers require machines with four processors. Also, VMware is trying to keep pace with next-generation servers powered by Advanced Micro Devices (AMD) and Intel processors.

"If you look at processor trends, both Intel and AMD have shifted from increasing the clock speed of their processors to increasing the number of processor cores on a single chip," says Michael Mullaney, vice president of marketing for VMware. "Going forward, you are going to find out that even a two-CPU server actually has four processors."

VMware, which was founded in 1998, has partnerships with Citrix, Dell, HP, IBM, Oracle and Red Hat, among others. Gartner says VMware owns the bulk of the virtualized server market and will control about 80% of it by the end of next year, though the research firm figures Microsoft will start to challenge VMware over the next couple of years.

Here's a look at some of the other

See Servers, page 28



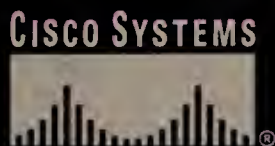
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Firefox

continued from page 25

multilayer security, making sure that the patch process is fully vetted, ensuring compatibility with the enterprise's existing application set — typically takes years, and it hasn't gone through that process yet."

Meanwhile, the danger in over-hyping an up-and-comer such as Firefox is that the publicity might force its developers to try to play the enterprise card before the technology has a chance to mature, Enderle says. "It's kind of a shame, in a way, when this happens before a product is ready. Because people will adopt it prematurely, they will have bad experiences and often that will kill the offering."

Enterprise-ready or not, Firefox is generating a lot of buzz in the industry. Its developer, Mozilla Foundation, says 5.6 million copies of Firefox 1.0 were downloaded in the two weeks after it became available on Nov. 9. Thus far, 8 million people are using

the Web browser, Mozilla says.

Mozilla is gaining market share at the expense of Microsoft, says Web site analysis firm OneStat.com. According to figures OneStat.com released late last month, Mozilla's browsers — including Firefox — account for 7.35% of global usage, up from 2.1% at the end of May. Internet Explorer still clearly dominates the browser market with 88.9%, but it's down from 93.9% at the end of May.

Lighting a fire under Microsoft

One clear benefit of Firefox is the competition it brings, Enderle says. Microsoft has stalled development of Internet Explorer in the past, often to placate corporate customers fearful of browser modifications, he says.

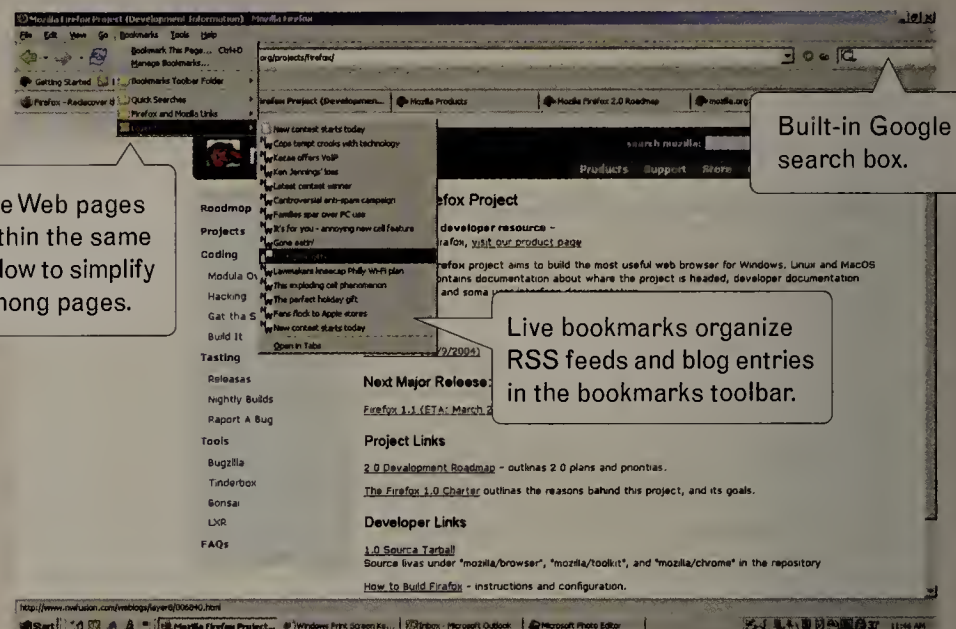
"Microsoft does better if it has somebody to compete with," Enderle says. "Without any competition pushing Microsoft to develop the product, and with the customer base screaming at them not to change anything because they didn't want to break the application sets, Microsoft cut back on advancing the platform."

The appeal of Firefox is its features, smaller footprint and better performance, agrees Earl Baugh, senior systems architect at consumer credit and financial information provider Equifax in Atlanta. "You see Microsoft making very, very little improvement in [Internet Explorer] in general, whereas the alternative browsers seem to have a much more active development process."

According to Mozilla, some of Firefox's

The face of Firefox

Users like some of the navigation features built into the Firefox 1.0 Web browser, which 5.6 million people downloaded in the first two weeks of its availability.



More online!

What are the best IT strategies and practices for growth in the year ahead? Johna Till Johnson and John Gallant offer answers at The 2005 IT Road map — a new Tech Tour event coming to a city near you.

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Servers

continued from page 25

companies vying for attention in server virtualization:

- Leostream, a VMware partner, started in 2001 and makes the Virtual Machine Controller (VMC). The software is designed for managing server virtualization products from VMware and Microsoft, presenting each virtual server on a Web-based display. Its latest offering, VMC SAN edition, is for managing virtualized servers attached to a SAN. It costs \$2,800, plus \$300 per processor managed.

"One of the biggest features of Leostream's VMC SAN Edition is the ability for your virtual machines to fail over," says Leo Frisino, computer systems programmer for the New York State Division of Housing and Community Renewal in Albany. "If a virtual machine is executing in a server and that box fails, the virtual machines will come up on the other ESX box. VMware does not have similar failover capability," says Frisino, who virtualizes five production servers with VMware's ESX Server.

- PlateSpin recently launched software that lets IT auto-

matically convert Windows and Linux servers back and forth from physical servers to virtualized servers. PlateSpin's Power2V 3.6, which runs on a desktop PC, starts at \$3,000 for a version that allows 25 conversions.

- Softricity has partnered with Aurema to let customers manage, streamline and optimize their virtual machine environments running VMware's ESX Server and Citrix MetaFrame. Softricity's software enables applications to be spread across virtual machines, while Aurema's ArmTech is workload management software that monitors, optimizes and dynamically allocates processors and memory for applications running in virtual machine environments.

Dave Williams, senior systems engineer for the Government Employees Hospital Association in Lee Summit, Mo., uses

ArmTech on his servers to balance application loads. "Once our Citrix servers were rebooting, locking up and had the processors running to 100%," he says. "ArmTech balances the workload of applications with the [server's] memory and processor, so one user can't steal 100% of the processing capability." ■

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key features include a built-in pop-up blocker and tabbed browsing, in which Web pages are loaded in "tabs" within the same browser window to make it easy to switch among Web pages. Firefox's new "live bookmarks" feature is designed to help users keep track of RSS feeds through the browser.

Baugh says he's tried Firefox on all the applications to which he has access. "I'm using it as my default browser to help determine if it's ready for a larger deployment," he says.

He says he would consider switching to Firefox, but only if it didn't raise compatibility problems. "If the browser allows for viewing all of the same content as [Internet Explorer], it has a chance," Baugh says. "However, to date, inevitably, some Active X control or display component doesn't display in the alternative browsers."

In his testing so far, Baugh has found problems are not typically with the internal applications he manages, but with Web pages that are outside of his control. For example, pages from Equifax's external benefits providers might not function properly.

Baugh says moving from Internet Explorer to an alternative browser could reduce security risks because a non-Internet Explorer browser would be less of a target. "Part of the motivation for writing exploits against [Internet Explorer] is that you're going to find it on every machine that has

Windows installed. Even if the end users utilize another browser, it's still there. But, if your default browser isn't [Internet Explorer], then you have a smaller chance of having these exploits work," he says.

Other users are more skeptical that deploying Firefox will yield a more secure environment. "I don't believe that open source software is more secure by default. As long as human beings create software, bugs and security risks will be in the software we use," Beasley says.

Moving to another browser might reduce security risks in the short term, but not in the long term, Basse says. "Whoever has the largest market share for their product will become the target for hackers, and attackers will find holes in almost any product, given enough interest and time," Basse says. "Switching to Firefox might resolve the latest slew of problems, but if everyone switched to Firefox, the hackers would simply begin working on breaking into it."

Enderle agrees. "The platforms that are going to be most used are going to be most exploited because that's how the professional attackers work," he says. As Firefox's popularity grows, it will become more of a target for hackers, he says. "We're going to see over the next 18 months if Firefox can take the kind of pressure that Microsoft has now been under for several years."

Senior Writer Denise Dubie contributed to this story.

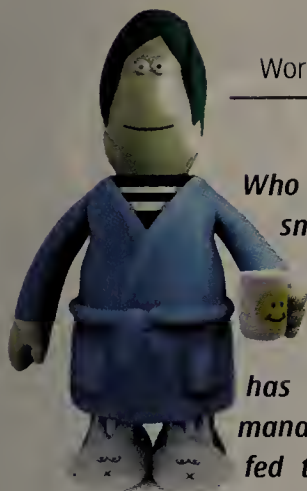
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Working-At-Home Walter

Who can blame Working-At-Home Walter for feeling a bit smug as he tunes his radio to the morning traffic report? He's not stuck in that freeway mess caused by the overturned lobster truck. He hasn't even shaved, and may well not until dinner. Working-At-Home Walter has swapped his wingtips for fuzzy slippers, but still manages to stay highly productive—not to mention better fed than his in-office compatriots. As Working-At-Home Walter says, it's all a matter of having the right technology to make a home a castle of productivity.

Do you feel you are really as productive at home as you used to be in the office?

Actually no. I'm more productive! It took me a while to realize that all those water cooler conversations, nosh breaks, meetings that always seem to run longer than they need to, and other office antics didn't help my productivity one iota. At home, I'm totally focused. I have more flexibility, too. If I have to stop work at 4:30 to start dinner—I'm a great cook you know—I'll go back to work at 7 to finish up.

How has your boss reacted to your working at home so much?

My boss and the rest of the brass believe that happy workers are productive workers. Mobile technology from Nokia has helped me balance my home and work life. I'm very highly motivated to be as productive here as I'd be in the office, maybe even more so, because working at home gives me that balance I need.

About the Interviewer



Bill Laberis was editor in chief of *Computerworld* for ten years (1986-1996). He is president of Bill Laberis Associates, a custom publishing and content company (www.laberis.com). His columns, Webcasts, supplements and magazines are well-known and respected throughout the high-tech industry.

And the IT people, what do they think of your working remotely?

My buddy Joe in IT says it doesn't matter to him and his crew where I work. Nokia helped the IT department apply best IT practices to all the mobile gear

they support, so extending key applications to sofa jockeys like me has been no problem. Excuse me a second. Gotta take a call from one of my kids at soccer practice.

So what's the secret?

In a word, Nokia. Only it's no secret because the company is world renowned for helping guys like me commute less, connect with coworkers from the comfort of my patio lounge chair, and work in my pj's. My mom got me these, so no laughing, OK?

What are the most important technologies for your work-at-home success?

My laptop is *numero uno* with me, but only if I can have confidence that the connection I have back to corporate is secure, given the info I need. Mobile email is my killer application so it has got to be working 24/7.

Why is security so important to you?

Don't let the slippers and pajamas fool you. I've got an important major accounts job. I need access to business-critical information intended for very few eyes. That access has to be as secure as the gold at Fort Knox. So we use Nokia Secure Access System. I'm no computer whiz, but I'm told this system leverages something called SSL technology running on Nokia's IP Security Platforms. Look, the bottom line is this: Instead of worrying if my data is safe, I get anytime, anywhere access to email, the corporate intranet, management portals, and just about any data I need—instantly and in real time. It's way cool!

What other mobile technologies work for you?

I love my Nokia 6820. It gives me quick and reliable access to the data I need and the people I want to contact. It's got a great color screen for my tired eyes. The quality of the speakerphone for conference calling is outstanding. Depending on my mood and needs, I also use my smartphone based on the Nokia Series 60 software platform. It's unbeatable for voice and data connections, whether for email on-the-fly or just messing around on the Internet.

You are in great shape. How do you stay away from the refrigerator during the day?

Working at home takes some discipline. I ration myself two trips to the kitchen for snacks a day, just like a regular office break. And once in a while I ask my wife, "Honey, do I look fat?" Let's just say I married an honest woman.

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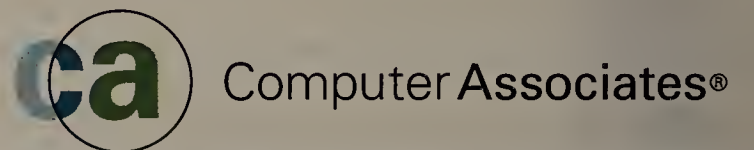
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Tivoli plans to be Big Blue's MVP

Technology challenges, competitors, internal politics keep software group on its toes.

■ BY DENISE DUBIE

Fighting to keep its lead among aggressive competitors, IBM Tivoli in the coming year plans to improve its IT service management offerings to help Big Blue deliver on its autonomic computing and On Demand Business promises.

For the past eight years, IBM Tivoli has successfully given IBM an edge with its sys-

tems management software. According to Gartner, IBM in 2003 led the market for enterprise systems management software with nearly 34% of worldwide license revenue, which overall grew about 11% in 2003 to \$5.6 billion. Competitor Computer Associates trailed IBM with about 12%, followed by BMC Software at just more than 8% and HP with about 7%.

Within IBM, Tivoli also managed to make promising numbers. Overall, IBM's software group — comprised of five divisions — increased its revenue in the third quarter of 2004 to \$3.6 billion, up 5% from last year's third quarter. Of that, revenue for IBM's Tivoli grew 19% overall, and specifically, Tivoli security software revenue was up 47%. IBM doesn't offer specific dollar figures for its software divisions.

In the coming year, Tivoli hopes to break further away from the big four management vendors and make IBM the leader in IT service management as well. Tivoli will play a bigger role in tying IT systems directly to business processes and objectives, and managing groups of IT components as services.

Expand the plan

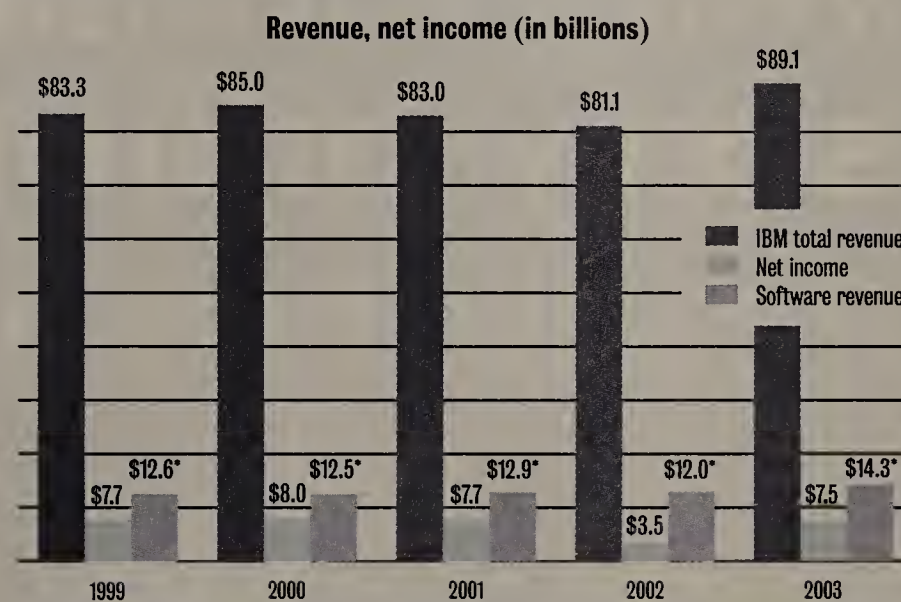
For Tivoli, that means expanding beyond its systems management expertise and into server, identity, application, and change and configuration management, as well as IT governance, or managing the allocation of IT resources. Tivoli executives (mostly veteran IBMers) say the management software group will play a key role in helping customers enable automated IT service management across their enterprise networks.

"The transformation of Tivoli isn't about it becoming more absorbed into IBM. It's about Tivoli doing more than systems management," says Bob Madey, vice president of strategy and business development for Tivoli and a 24-year IBM veteran. "Tivoli is going to deliver the common architecture and common data models to link IT performance to business processes. Within the next three years, all Tivoli applications will be built on a [service-oriented architecture] and share an underlying data model to enable data sharing across enterprise systems."

Another example of how Tivoli plans to weave its technology throughout IBM is in Big Blue's Common Event Infrastructure (CEI), the future development of which

Steady as she goes

IBM Tivoli has maintained steady earnings since IBM bought the management software company in 1996.



*Tivoli software is one of five IBM Software Group brands — DB2, Lotus, Rational, Tivoli and WebSphere.

falls to Tivoli and its peer WebSphere and DB2 software divisions. CEI is based on the IBM-developed Common Base Event specification, a standard format for event logs that devices and software can use to keep track of transactions and other activity.

CEI would enable WebSphere business process events and network device events from Tivoli monitoring products to be integrated, normalized and correlated on one screen for IT managers. The goal is to more quickly show the IT cause for a business process slowdown.

Tivoli also intends to head up Big Blue's push for automating IT actions along the lines of business objectives with technology centers and partnerships. For example, IBM last week announced the Advanced Tivoli Orchestration and Provisioning Technology Center, which is designed to help customers perform proofs of concept with IBM's gear and Tivoli's automated server provisioning software that it acquired from ThinkDynamics.

"The move to an On Demand operating environment is fairly heavy stuff. These types of initiatives, these technology centers, are designed to give our customers the practical experience they need to accelerate their adoption of automated IT management," Madey says.

Somebody to lean on

Yet IBM is quick to acknowledge Tivoli can't do it all on its own. This year the company partnered with gear vendor Cisco to develop products to automate access and identity management, as well as server and storage management.

The identity management products are set to be available this month and draw on technology Cisco uses in its Network Admission Control (NAC) initiative, which involves the company partnering with anti-virus vendors to scan client devices and determine if they can gain access to a network. For example, the Tivoli compliance software will scan for operating systems, patches, firewalls, applications such as Kazaa and viruses to determine if a device can gain access.

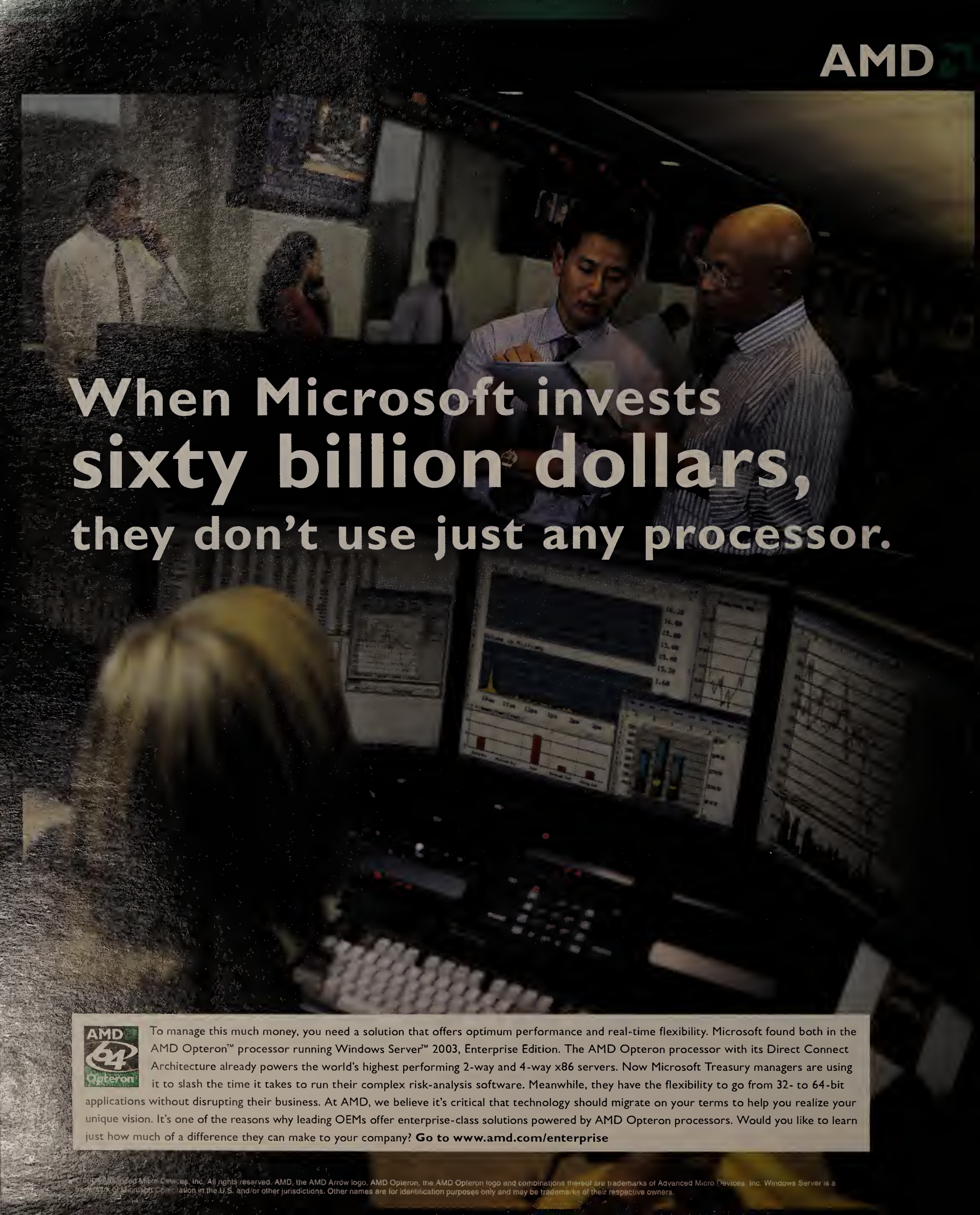
Cisco also earlier this year developed switch hardware for IBM's BladeCenter products that will help improve traffic flows inside blade server chassis, the companies say. Integration of IBM server and storage provisioning software with Cisco Catalyst 6500 LAN switches and MDS 9000 storage-area network switches will let users operate data center network and computing infrastructure as one system.

See Tivoli, page 33

Short Takes

■ **IBM** and **Sybase** last week teamed to add support for Sybase's database software on IBM's eServer OpenPower Linux servers. The two companies said they will jointly sell and market their products. The move extends IBM's support for one of its software rivals: Sybase's Adaptive Server Enterprise database competes against IBM's DB2 software, both of which also vie with databases from Oracle and Microsoft. The agreement could help IBM find new customers in the financial services field, where Sybase has a strong presence. It also gives Sybase access to IBM's marketing activities and sales channel. IBM said support for Sybase ASE will be available early next year.

■ **Relicore** this week announced that the newest version of its automated IT service management configuration software, Clarity 4.0, will be available Dec. 10. The product consists of a management console and central data repository, which is updated based on new information received from agents installed on managed servers. The company says Clarity also helps customers link IT services with specific servers and applications in a topological map. In this release, Relicore provided APIs to help IT managers link the configuration data to network and systems management tools such as HP OpenView, Tivoli TEC and Computer Associates' Unicenter. Pricing starts at \$200,000.

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Dawning of the Converged IP Network

INTELLIGENT
"SYSTEMS-
ON-A-CHIP"
EARNING
IT ACCOLADES

BY ELISABETH HORWITT

Broadband IP network convergence has been redefining itself of late, both as a market and as a corporate strategy. As a result, "We've emerged from the 'kick-the-tires' phase," says John Roesse, CTO of Enterasys Networks. "CIOs are seeing something meaningful at the end of the tunnel that will make workers more efficient and effective," and their companies more competitive.

As the technology has matured, and products have become more standards-based, corporate technical decision makers have gained confidence that a converged IP network infrastructure will provide a firm, forward-migratable foundation for the next wave of strategic business applications. "Our customers told us they wouldn't go with IP telephony if they're just getting an IP phone that acts like their former telephone, or if they're just moving from one proprietary architecture to another," Roesse notes.

A lot of big corporations have spent the last few years consolidating data streams from multiple applications and access points onto a single backbone based on TCP/IP and high-speed Ethernet. Recent statistics tell the story: Dell'Oro Group expects Gigabit Ethernet port shipments to at least double, from 13 million units in 2003 to more than 27 million in 2004, according to Seamus Crehan, a director at the networking and telecommu-

nications research firm.

More recently, companies have begun moving beyond broadband converged data networking toward a fully integrated, enterprise network infrastructure that can handle the full range of services: from teleconferencing to storage networking to server clustering. Helping them to reach their goal with a minimum of pain is an emerging breed of intelligent network hardware based on highly integrated semiconductors known as "systems-on-a-chip."

"Whether you're talking about VoIP [voice over IP] or iSCSI storage, it's not just about high-speed connectivity anymore; you have to move bits around the network intelligently, in order to ensure security, reliability, and quality of service," says Roesse.

Increasingly intelligent and versatile IP network infrastructures are forming the basis for a wave of new applications that are providing businesses with strategic advantages as well as significant cost savings.

Moving Beyond VoIP

Consider, for example, the veritable explosion in American companies' use of VoIP technology that merges voice and data onto a single IP/Ethernet infrastructure. A 2003 IDC report predicted that U.S. spending on hosted VoIP will reach approximately \$281 million this year, growing to \$1 billion next year (2005). By 2007, revenue is expected to reach \$6.7 billion.

In a 2003 Nemertes Research survey of 42 large corporations, 62% of respondents said they were currently using IP telephony; 19% were running a trial; and the rest planned to implement it within the next year or two.

The reported return on investment (ROI) and measurable benefits the VoIP pioneers cite are impressive, and include lower maintenance and management costs, the result of dealing with one set of network boxes, interfaces, and cables instead of two or more. Companies report saving thousands of dollars per month by using IP telephony to bypass long-distance toll calls; global firms have saved much more on international calls.

And cost savings are just the beginning. Converged IP networking has paved the way for a new generation of applications and software tools that are boosting end-user productivity and helping companies gain a competitive advantage. >>>>

Instant voice messaging is a perfect example, says Jeff Snyder, a research vice president at Gartner. "You click on my name, and my phone rings, no matter where I am; as long as I'm logged onto the network, it knows how to reach me. Drag in a colleague's name and you have an ad hoc conference call."

Another promising development is convergence on end-user devices across a unified end-to-end infrastructure. Broadcom has introduced switch and VoIP chipsets, for example, that will enable OEMs to build Wi-Fi-enabled cell phones, "so you can roam between the cellular and Wi-Fi IP telephony worlds with one device," says Roesse.

User Demand Driving IP Convergence

Indeed, user demand is one of the biggest drivers behind converged IP networking strategies. "Users want voice, data, and video services delivered in an integrated fashion," to support the growing body of multimedia productivity tools and applications being offered on desktops, laptops, and the latest mobile computing devices, says Charles Salameh, vice president of emerging solutions at Bell Canada, a telecom service provider and systems integrator.

IT decision makers see converged IP networking as their best shot at meeting users' multimedia needs over the long haul. And they're counting on intelligent Gigabit Ethernet hardware to help them with quality of service (QoS) and security management, across an increasingly diverse set of network services and media traffic.

To address this demand, networking vendors are providing their latest Gigabit Ethernet products with the intelligence to handle these tasks and a great deal more. And much of this high-level intelligence resides in silicon solutions that have traditionally been the "nuts and bolts" of networking equipment, says Kevin Tolly, president of The Tolly Group research firm. In the last year or two, chipmakers like Broadcom "have gone up the stack tremendously, and have preintegrated a lot of the functionality and capabilities," he adds.

"The trend is toward supporting a

higher capacity of networking interfaces and a broader range of services on the same piece of equipment, and using silicon intelligence to handle sophisticated management of converged applications running across a single Ethernet network," says Ford G. Tamer, group vice president of Broadcom's Network Infrastructure Business Group. "Such migration to converged IP networks can mean huge savings in maintenance costs," he adds. "You're managing your desktops, laptops, VoIP phones, wireless access points, security, and storage needs within the same equipment, instead of across two or more boxes."

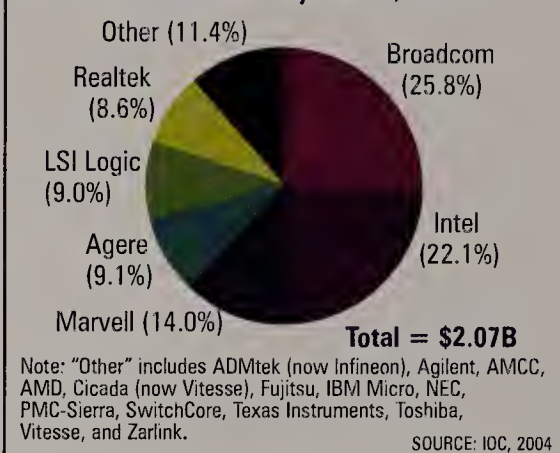
Broadcom in Step with Key Trends

Broadcom® silicon solutions are at the forefront of these trends. For example, systems using Broadcom's StrataXGS® family of enterprise switch products offer enhanced scalability and multilayer intelligence to address the different service-level needs of voice, video, and data traffic within business environments, Tamer says. This enables IT managers to maximize network uptime and ensure security while promoting ease of management.

Furthermore, Broadcom's NetXtreme™ II C-NIC (Converged NIC) is the first Gigabit Ethernet NIC that can simultaneously perform storage networking, high-performance clustering, accelerated data networking, and remote system management on a standard Ethernet network, according to Allen Light, Broadcom's server controller product line manager.

One of the big advantages of the C-NIC is its ability to offload a variety of functions from the host CPU, "freeing up processing cycles and enabling the server to handle other functions," says Sean Lavey, a program manager at IDC. For example,

Worldwide Ethernet ASSP/ASIC Semiconductor Revenue Share by Vendor, 2003



Broadcom's C-NIC has a TCP/IP Offload Engine (TOE) that takes over the processing of TCP/IP stacks.

During a Microsoft® benchmark test, Broadcom's BCM5706 C-NIC, equipped with a TOE, had a throughput of 1.8 Gbit/sec at 20% CPU utilization, and used only 3 watts per Gigabit. In comparison, the same Windows® server equipped with an Intel® non-TOE Gigabit Ethernet NIC had about 1.5 Gbit/sec at 95% CPU utilization, and used 90 watts per Gigabit.

Other key C-NIC offloading capabilities include:

- Remote Direct Memory Access (RDMA) that enables servers in high-speed clusters to write directly to each other's memory, bypassing the bus. This eliminates potential bus bottlenecks and boosts performance, enabling clustered X-86-based servers to handle applications that ordinarily require high-end, and much more expensive, Unix machines.
- Support of the iSCSI protocol that allows IT professionals to move block-level storage from a dedicated Fibre Channel SAN onto a shared converged IP network.

C-NICs, and other recent Broadcom offerings, also represent the leading edge of an important industry trend, in which network equipment manufacturers build their products with more "systems-on-a-chip" and fewer custom ASICs. In this way, they can bring new products to market faster and more cheaply, which translates into more choices and lower costs for customers, says IDC's Lavey.

Enterasys used Broadcom's StrataXGS silicon as a critical component for its Matrix C2 line of layer 3 stackable IP switches, announced in September 2004. "The intelligence of Broadcom's componentry provides the foundation for many security functions, enabling support for multimodal systems, predictability, and integration," says Roesse. By using Broadcom silicon, with built-in capabilities like classification and policing, Enterasys was able to deliver the new switches in about eight months, "more cheaply, and compromise-free," he adds. In contrast, building the product from scratch internally, using custom ASICs, would have taken about 18 months. The benefit for Enterasys' customers: "They get state-of-the-art equipment, while still keeping up with the market's progression toward faster, cheaper equipment."

Converged IP Networks Deliver on QoS

EVEN AS THE COST OF HIGH-SPEED SWITCHING CONTINUES TO FALL, few companies can afford to simply throw in more Gigabit Ethernet connections when traffic peaks start getting chronic. Network managers often wind up doing endless tweaking and reconfiguring to ensure that (1) quality-of-service (QoS) levels get met and traffic continues flowing, and (2) budgets don't get busted.

This can be especially tricky when you're dealing with a converged IP network that carries different types of traffic with very different service-level agreements (SLAs) and latency parameters.

Broadcom Has IT in Mind

Fortunately, network managers are able to hand over more and more QoS administration tasks to increasingly intelligent network hardware being built by Broadcom and its OEM partners.

"What's more important [than raw switching power] is having an Ethernet switch intelligent enough to recognize a string of voice packets and make sure they are given priority," says Seamus Crehan, a director at Dell'Oro Group. "We're starting to see that trend toward more and more intelligence in Ethernet switches, wiring closets, desktop switches." Dell'Oro predicts that 33% of stackable switches will be layer 3 in 2004, up from 5% in 2001.

Broadcom's intelligent silicon enables OEM partners to administer QoS for multimedia applications at every point in the network. This is crucial, says John Roese, CTO of Enterasys Networks: "Because if any node doesn't know it's dealing with voice, you jeopardize the user experience."

Not All Silicon Is Created Equal

All this is good news for corporate decision makers. But Tolly adds a caveat: It's becoming crucial that IT executives "look under the hood" when shopping for Gigabit Ethernet equipment, and ask a few pointed questions about the brand, feature sets, and configuration of the underlying chipsets—before making a buying decision. One important question to ask: Will it interoperate with other types of equipment?

Broadcom has a three-pronged interoperability strategy. First, it has been an industry leader in both the development and implementation of key industry standards like RDMA, iSCSI, Wi-Fi, and the IEEE 802.1x Extensible Authentication Protocol. Second, it does extensive testing to ensure all of its products are backward and forward interoperable, and can support legacy applications. Finally, Broadcom provides support for vendor- and operating system-specific de facto standards that enable networking equipment to work seamlessly with the host computing platform.

For example, Broadcom currently provides the only TOE on a chip that interfaces with Microsoft's TCP Chimney. Support of Chimney enables TCP/IP Offload Engines to interface directly with Windows, offloading TCP/IP processing for all network traffic, Broadcom's Light explains. Without that operating system support, a TOE can only work on an iSCSI adapter that bypasses the operating system.

How Well Does It Perform?

IT managers also need to check published benchmark tests that compare the performance of the same type of chip from different vendors. eTesting Laboratories found that Broadcom's NetXtreme 64-bit PCI-X Gigabit Ethernet server adapter achieved significantly higher throughput rates compared with the Intel Pro1000 XT server adapter.

Network equipment performance depends not only on the power of the underlying silicon, but on "architectural choices that chipmakers are increasingly making," says Tolly. Customers should ask

Broadcom's StrataXGS chipset, for example, which is incorporated into Enterasys' Matrix C2 layer 3 IP switch, can classify packets, enforce QoS policies, and do traffic policing and shaping, by type of protocol, Roese says. "So you can move beyond the basic VLAN model, the switch can look at the traffic stream and say, 'ah, you're this type of voice; you need this service level, this type of security.'"

The newest generation of network switches based on Broadcom Gigabit Ethernet silicon will be able to do much more, says Ford G. Tamer, group vice president of Broadcom's Network Infrastructure Business Group. "The switch is becoming the management focal point. Features like layer 3 switching, packet-by-packet security, authentication, and discovery are all being integrated into our wired switch silicon."

Managing Through a Single Device


"QoS functions that used to be exotic and proprietary are now being built into network hardware components," says Kevin Tolly, president of The Tolly Group. "The more these functions become core and mainstream, the more reliable and efficient they are."

"Standardization and componentization at the chip level by someone like Broadcom allows [enterprise IT] to ensure that functions like QoS are implemented across the network—not just on MPLS routers, but on every least link and low-end device," Tolly adds. That makes it a whole lot easier to enforce SLAs across different media, and from one end of the network to the other—which should make everybody happy.

questions like: "Do they support the latest industry standards? How much memory or intelligence did they put on the chip? Are tasks like IPSec encryption handled by the main processor or offloaded to a subsidiary?"

The bottom line, according to Tolly: There is a big difference between custom ASICs and standards-based, system-level semiconductors designed and tested to work together across the network. "You can do enough research on a chipmaker's products, like Broadcom's, to get a pretty good idea of what those silicon solutions can do for you," says Tolly. "Then you can ensure good performance across your network by ensuring that all your equipment is built on that chipmaker's hardware." ■

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'NET
INSIDERScott
Bradner

There is an almost universal feeling that U.S. telecommunications laws and regulations are way out of step with current telecom reality. The basic law was passed in 1934 and updated by the Telecommunications Act of 1996, which is 10 (or longer) years ago when it comes to telecom technology.

No one I know is looking forward to the prospect of Congress, outnumbered as it is by lobbyists, trying to "fix" the current mess. If anyone did have any hope that such a process might result in a positive outcome, recent events in Pennsylvania will have extinguished them.

After more than a year and a half of trying, the Pennsylvania legislature recently passed House Bill 30 (see www.nwfusion.com, DocFinder: 4935), which updates the

A warning about future telecom 'reform'?

existing state telecom regulations. This bill got a lot of press in mid-November because of a provision added late in the game that prohibits municipalities from offering "any telecommunications services, including advanced and broadband services" for a fee without basically getting the permission of the local monopoly telephone company.

It's probably not a coincidence that this provision showed up around the time that Philadelphia announced a plan to offer inexpensive, citywide, Wi-Fi-based Internet service. This provision was clearly added to protect local monopoly telephone companies such as Verizon from municipal-based competition. Under the provision, Verizon could block any future deployment of municipal-run networks by saying that it was going to offer similar speed Internet services in the same area. That would be the case even if Verizon's services were not going to be available for years or were going to cost a hundred times what the municipal-run network was going to charge.

This provision almost perfectly symbolizes the entire bill.

The bill starts out with a bunch of good sounding platitudes describing how it aims to ensure that Pennsylvania will get the best telecom services that Verizon decides it wants to deliver.

Oops, that's a bit sarcastic, but that's how I felt when I read this bill. Telecom bills like this are ostensibly for the good of the public but in actuality mostly benefit two monopolies: the regional telephone company and the utility regulators. There is very little in this bill that will benefit the ordinary citizens of Pennsylvania. They will get higher prices and little innovation.

The bill includes some bribes to get specific groups to support it. For example, it establishes an educational technology fund (the e-fund) to support things that educators like. The level and passion of support from some people in the educational community for the bill shows that this type of payoff works. Of course the money has to come from somewhere and it will come from higher phone costs for

the residents of Pennsylvania. In other words, the e-fund and other similar goodies in the bill are supported by yet another tax on telephone users.

What is missing is any hint that the best way to get innovation and lower prices would be to encourage competition for basic phone service. But that would threaten both of the bill's main beneficiaries.

This bill is the result of a perfect storm of telecom regulators and big telecom lobbyists. But this storm is a local squall in comparison with the Category 4 hurricane that will spring up when Congress starts to revamp federal telecom law. It will be very ugly, and you can be sure the beneficiaries will not be you and me.

Disclaimer: Studies show that Harvard brings big benefits to the community, but not all of the community agrees. In any case the above discussion of benefits is my own opinion and not the university's.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com.

Tivoli

continued from page 31

On one hand, being part of IBM does provide its benefits. For one, vendors such as Cisco are willing to co-develop products, and a pool of new customers will be made available to Tivoli salespeople. Despite tough competition, Tivoli executives are betting their affiliation with IBM will knock down any unopened doors.

"One of our core strengths as a business is that we can rely on the rest of IBM. If Tivoli makes a statement, it's not just Tivoli, it's an IBM technology initiative," Madey says. "That carries weight."

On the other hand, Tivoli faces potential extinction as a distinct product within IBM. As competitor HP pulls its OpenView management software into the forefront of HP's Adaptive Enterprise strategy — which competes neck-and-neck with IBM's On Demand Business plans — IBM keeps Tivoli in the background. While Big Blue plans to make Tivoli a core component of the company's underlying infrastructure across software brands, it's unlikely customers could recognize the management technology within larger software packages IBM delivers.

"Tivoli is now just another product at IBM," says Jasmine Noel, a principal at Ptak, Noel & Associates. "The value in that is they can potentially sell to more customers, but the danger is that their software could become shelf-ware as part of a larger IBM bundle unless IBM plays it up."

Noel argues that IBM will have to work a bit harder than, say, HP to make its management software prowess known. "HP has OpenView name recognition among network managers. Tivoli never got that widespread recognition, but it does have IBM to make itself known," Noel says.

PROFILE: Tivoli

Location:	Austin, Texas
Founded:	1989; acquired by IBM in 1996
Business:	IT service management software and services; application, security, storage, performance and availability, and configuration and operations management software.
Employees:	4,500 worldwide (Tivoli employees only)
Tivoli-related IBM acquisitions in 2004:	<ul style="list-style-type: none"> • April 2004: Candle (mainframe systems management software) • July 2004: Cyanea Systems (application monitoring software) • October 2004: Systemcorp (IT governance software)

Noel says to look for Big Blue to shop for change and configuration management (CCM) software from start-ups such as Collation, mValent and Troux. Competitors BMC picked up CCM technology with its Marimba acquisition and HP with its Novadigm purchase.

IBM this year acquired: Cyanea Systems for application monitoring; sometimes competitor Candle, mostly for the mainframe customer base; and Systemcorp, a Montreal company that makes IT governance software. According to Goldman Sachs, IBM should continue to fill technology gaps because customers are moving further away from point product purchases to signing with one vendor to meet all their management needs. ■

Opalis looks to automate repetitive tasks

■ BY JOHN FONTANA

Opalis last week released software that will help customers automate repetitive tasks associated with management, backup and virtualization technology.

The Opalis Connector Access Packs for OpalisRobot let users lay out automated workflows that include tasks associated with using Microsoft Operations Manager (MOM), Microsoft System Management Server (SMS), Remedy HelpDesk, VMware and Veritas back-up software. Opalis competes with product-specific tools such as BackupExec from Veritas Software and with internally developed Visual Basic scripts for automating routine tasks.

For example, a database administrator that has to shut down a server to apply patches using the software distribution features of SMS can build some of the basic manual steps to configure SMS and execute services into an automated process using the drag-and-drop interface of OpalisRobot. The Opalis software then will execute those SMS steps.

"This is allowing us to really do a lot of the day-to-day mundane stuff and avoid having problems where administrators are paged at three in the morning," says Damon Howell, network systems engineer at Blue Cross Blue Shield of Nebraska. Howell uses the Opalis connector for MOM to flag servers that are offline for maintenance so that administrators don't have to go into MOM and do it themselves.

"We have so many people that have authority to shut down a server that it is

impossible to train them all on MOM," Howell says. Instead, he set up a process in Opalis that monitors a mailbox. Administrators that take a server offline first send an e-mail to that mailbox with the server's name. Opalis picks up the message and runs a process that activates MOM, which in turn moves the server onto its list of servers that are in maintenance mode, which prevents any error messages.

Howell says the goal is to reduce the amount of repetitive management tasks that must now be done by the staff.

The other connectors Opalis offers provide access to similar automation such as registering a new virtual image or starting or stopping a virtual image in VMware. The Veritas connector verifies that processes are started and stopped correctly, and the Remedy connector works with various steps in opening, managing and closing trouble tickets.

"We're not trying to paint a panacea that everything will be managed through software, we are realistic," says Keith Millar, vice president at Opalis. "But there are certain tasks that fall into this well-known predictable area that can be automated and relieve the burden on humans to some degree. It is capture and execute, capture the manual process and execute it and get it off the to-do list."

OpalisRobot runs on Windows Server 2000 and 2003 and costs \$10,000. The GUI client tool to create workflows can be run from the server or a local workstation. Each Opalis connector costs \$2,000; the entire pack of five costs \$5,000. ■

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Messaging wars: Lotus, Microsoft move on

■ BY JOHN FONTANA

Nearly a decade ago, e-mail was the killer app and vendors IBM/Lotus and Microsoft were locked in a battle to prove which was best at delivering messaging to a corporate world hungry for online communication.

The winner? Both. Each scored victories that have set them up today as the kingpins of computer-based communication and collaboration, says Eric Arnum, a front-line correspondent during those messaging wars with his now-defunct *Electronic Mail and Messaging* print publication and "Messaging Online" newsletter, which chronicled the battle from the trenches.

"I always felt that when Lotus and Microsoft executives got up to say it was a two-horse race, that indeed was their goal — to portray it as a two-horse race," Arnum says. "In that respect, they both won, they got what they wanted, which was rough parity."

Today, the messaging wars that dominated the mid- to late 1990s, including tabulations of which company had the most licensed users and the best implementations of the latest Internet protocols, have disappeared into a mature market where IBM/Lotus and Microsoft hold nearly 60% of the users, according to the Radicati Group.

However, the fallout lives with IT administrators whose unending job now is to manage e-mail, store it, archive it and protect it from spam and viruses (see graphic).

IBM/Lotus and Microsoft have expanded the battle into full-on collaboration and real-time communications suites made up of components that include not only e-mail but also instant messaging, voice and videoconferencing, online work rooms and access to mountains of indexed digital data.

IBM/Lotus is pushing ahead with a next-generation platform called IBM/Lotus Workplace, a Java 2 Platform Enterprise Edition (J2EE)-based collection of messaging and collaboration components, such as teamware and

Taming e-mail

The Meta Group recently released a list of the Top 10 e-mail manager concerns now that the technology has matured and become a corporate staple.

- **Spam** (by a wide margin).
- **Storage** (user quotas, archiving, compression, SANs).
- **End-user overload** (too much clutter in the in-box).
- **Legal compliance and records management.**
- **Perimeter security and message hygiene** (includes virus).
- **System upgrades** (how much, why and when?).
- **System stability and recoverability.**
- **E-mail economics** (what does it cost, how to save money?).
- **Appropriate architecture** (centralized vs. hybrid vs. decentralized).
- **Remote access** (browser and PDA connectivity).

director for Exchange.

The jury is still out on this new fight.

Experts say IBM is balancing a nervous user base that thinks Notes/Domino will eventually go away even though the company is preaching an integration approach and plans to ship Version 7.0 next year and follow it up with Versions 7.5 and 8.0, which would push support for the platform into 2009. Last month, IBM announced 17 Workplace templates that mold the technology to specific industries and Workplace Express 2.0 for small and midsize businesses.

"The point is that Workplace is an additive model," says Ken Bisconti, vice president for Lotus Workplace products. "We are adding a new data store option, but we are not taking away the [Domino Notes Storage Format] store. We're not taking away the traditional application framework but adding a broader Eclipse programming model."

Users say that reality is coming into focus.

"We can embrace J2EE and still have Notes applications," says Bruce Elgort, manager of information services for Sharp Microelectronics of the Americas in Camas, Wash. "But there is a whole new platform out there and IBM is building upon the success of WebSphere; why wouldn't you? How far are you going to beat Notes and Domino into the ground?"

But analysts say the Notes/Domino and Workplace plans baffle users.

"They are trying to deliver multiple [overlapping] messages," says Tom Austin, a group vice president at Gartner. "Message No. 1 is 'don't worry, you can stay with Notes and Domino forever' and customers don't believe that; and with good reason."

A controversial report issued by the Radicati Group earlier this year predicted Lotus will lose 7% of the corporate messaging market in the next three years because of its confusing Workplace strategy, going from

24% to 17%, while Microsoft will jump from 31% to 33%.

"The Domino install base tends to be somewhat concerned about the notion of moving over to Workplace," says Meta Group's Matt Cain. "It is not unusual to at least contemplate a migration to Exchange and/or look for some commodity back-end [e-mail server]."

The picture isn't much clearer for Microsoft, which still has 32% of its user base on Exchange 5.5, according to Radicati. And most are running on Windows NT for which support ends this month.

"They are very exposed with the 5.5 install base," says Sara Radicati, president of the Radicati Group. "Microsoft has to be somewhat careful of the [vendors] on the low end of the market because messaging has become more and more commoditized. The other challenge is security, basically the spam and viruses."

Another challenge is presenting an attractive migration model for Domino shops. "They have been lacking there," Cain says.

Microsoft's messaging road map is foggy at best. The follow-on to last year's release of Exchange 2003, which was previously called Kodiak and was to introduce a new SQL Server-based data store, is off the road map for now, according to Microsoft officials. Also gone is a security option called Exchange Edge Services that was slated to ship next year but is now in limbo. The stand-alone message transfer agent was designed for the edge of networks to secure the flow of e-mail to and from the Internet. It also will become a hub to plug in third-party security software and Microsoft's Intelligent Message Filter for spam.

Microsoft's lack of a product road map might be tied to a lack of understanding of end-user needs, Gartner's Austin says.

"Microsoft is still at the bits and bytes level and still worried about adding new features and new architectural integrity," Austin says. "They haven't figured out how all this fits into either empowering end users, which has fallen off the radar screen for Microsoft, or how it fits into solving real business problems."

What is clear is that the rivals are locked into another battle, this one much broader with the inclusion of collaboration and real-time communication.

"It is a different battle with a different set of leverage points and a space with a lot of other competitors," says Ed Brill, a longtime Lotus employee and business unit executive for worldwide sales at IBM/Lotus. "It does have echoes of the past, but it doesn't have the same urgency, which is not to say we are not putting in a lot of effort."

Then Brill, a veteran of the battle with Microsoft, fires off another round. "Maybe that's why Microsoft has been able to move away from Exchange as a platform for collaboration." ■

“They both won, they got what they wanted, which was rough parity.”

Eric Arnum
Journalist

document management, which Gartner predicts is the eventual replacement for Notes/Domino.

Microsoft has slung all the collaboration advancements it failed to develop on the back of Exchange onto the mighty shoulders of its Office franchise. The "Office System" includes the corporate standard Outlook client, as well as SharePoint Portal Server 2003 and Windows SharePoint Services 2003 for information sharing and collaboration, Live Communications Server 2005 for instant messaging and presence, and the Live Meetingonline Web conferencing service.

"The advantage we have is that no one can beat the integration we offer with Office," says Kim Akers, senior



More online!

Listen to highlights from Mark Gibbs' presentation on strategies for creating a messaging environment that ensures network integrity, user productivity and returns power and control to enterprise network managers.

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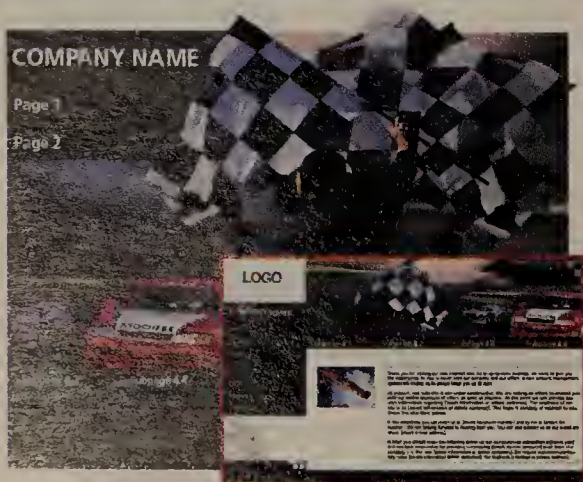
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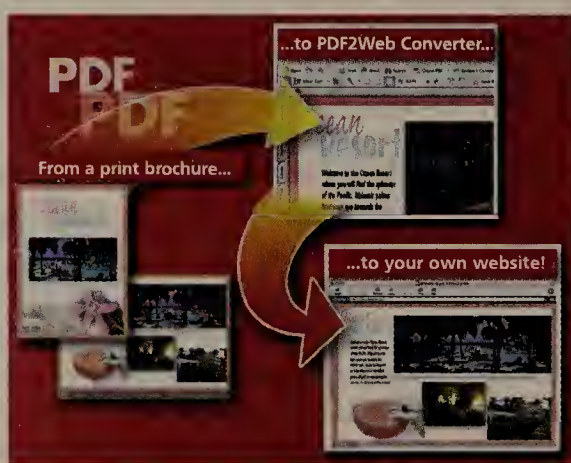


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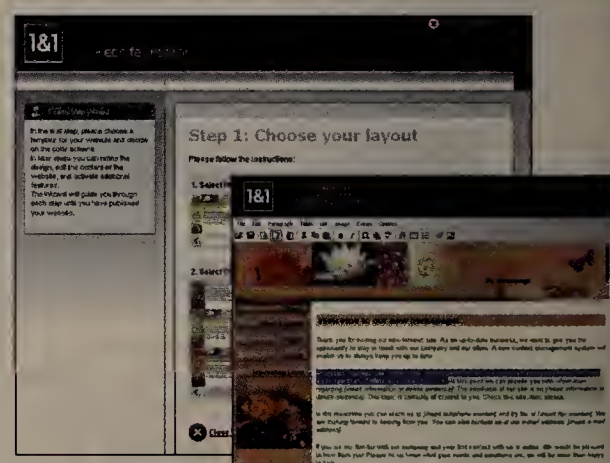
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FrontPage extensions	✓	✓
CGI library	✓	✓
Active Server Pages	—	✓
ASP.NET, .NET Framework	—	✓
Perl, PHP3, PHP4, and PHP5	✓	—
1&1 WebDatabase	✓	✓
Database	1 MySQL	MS Access
Cron Jobs	✓	—
SSI (Server side includes)	✓	✓

DOMAIN NAMES

Included Domains	3	3
Subdomains	50	50
Run multiple independent sites	✓	✓
Full DNS management	✓	✓

E-MAIL

E-mail accounts with 1 GB space each	500	500
Aliases, auto-responders, forwarding	✓	✓
1&1 WebMail	✓	✓
Spam filtering for all accounts	✓	✓
Virus Protection for all accounts	✓	✓

SECURITY FEATURES

Protected by up-to-date firewall	✓	✓
Daily backups	✓	✓
Password protected directories	✓	✓
SSH Secure Shell Access	✓	—
Dedicated SSL Certificate	optional	optional



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Short Takes

■ **Wireless service provider Alltel** announced last week that it is acquiring spectrum licenses, network equipment and subscribers from **Cingular Wireless** for \$170 million. Alltel is the sixth-largest wireless provider in the U.S. Federal regulators required Cingular to divest certain AT&T Wireless assets to receive approval for the merger. The deal closed in late October. Alltel is buying licenses, gear and customer accounts in Fulton, Ky.; Grant, Okla.; Jack, Texas; Litchfield, Conn.; Oklahoma City, Okla.; Owensboro, Ky.; Sherman-Denison, Texas; and Yalobusha, Miss. Alltel also is buying spectrum only in Wichita, Kan., and a number of counties in Georgia and Texas. The deal is subject to regulatory approval and is expected to close in the first quarter.

■ **Amedia Networks**, a provider of Ethernet-switched optical network products, recently announced that it has entered into a non-exclusive co-marketing agreement with metropolitan Ethernet router vendor **Riverstone Networks**. Under the agreement, the two companies plan to integrate Riverstone's core Ethernet switches with Amedia's QoStream AS5000 Aggregator Switch and the QoStream PG1000 Premises Gateway. Amedia expects its initial QoStream products will become available for product testing and commercial release by Dec. 31. Amedia was formed from ESON development work undertaken by Lucent and Bell Labs. Lucent recently announced an agreement to resell Riverstone's Ethernet routers.

■ **Cingular Wireless** plans to offer 3G mobile data service in many major U.S. urban and suburban markets next year and in most major U.S. markets by the end of 2006, the company announced last week. The service, using Universal Mobile Telecommunications System technology with High Speed Downlink Packet Access, will deliver average data speeds between 400K and 700K bit/sec.

Juniper connects high-end routers

TX Matrix interconnects T-series routers, but at half the previously stated capacity.

■ BY JIM DUFFY

Juniper last week launched a switching matrix for interconnecting multiple high-end carrier routers into a multiterabit-capable system designed to accommodate more service subscribers.

Juniper's TX Matrix, which was first introduced more than two years ago along with the company's T-series core routers, raises the stakes once again in this hotly contested market. Juniper made significant market-share gains at Cisco's expense in the third quarter, despite the introduction of Cisco's ultra-high-end and highly anticipated CRS-1 core router in May.

Although the systems are sold to carriers and services providers, core routers are

meaningful to enterprise customers in terms of enabling service-level guarantees. Interconnecting core routers enables scale and higher performance, which lets service providers accommodate more subscribers and help ensure service availability.

"By increasing the size of the core, it would give [service providers] more overhead to be able to offer more services with a known guarantee," says Jeff Ogle, an analyst at Current Analysis. "For the enterprise, you know you'd be safe to turn on filtering or other security features without grossly eating into the throughput of your core backbone."

The TX is a five-slot chassis that fits into a 19-inch telco rack. It holds modules that each support four optical intercon-

nections to a single T640 router for data and control plane redundancy.

Each TX requires five optical connections to a T640. The matrix can therefore connect four T640s at 2.5T bit/sec and 3 billion packet/sec forwarding, which is half the capacity Juniper first quoted for the system when it was introduced — eight T640s at 5T bit/sec. Juniper now says eight T640s at 5T bit/sec was at the extreme end of its expectations and that a single TX eventually will support more than eight T640s.

As an indication of its potential, T-series product manager Tom Jacobs says one TX now can support 64 T-series packet-forwarding engines (PFE). Juniper has

See Juniper, page 42

Q & A DoS responsibilities seen widening



Financial losses caused by denial-of-service attacks stand second only to the toll caused by viruses, according to a recent study by the Computer Security Institute and the FBI. Network World Senior Editor Denise Pappalardo recently spoke with Thomas Arthur, CEO of Arbor Networks, about DoS attacks and whether service providers and their

customers are doing enough to protect their networks. Arbor's PeakFlow SP product, a traffic and routing management platform that defends against DoS and worm attacks, is deployed by 70 service providers worldwide.

Are DoS attacks getting worse? Are your customers seeing new types?

There are more attacks and different types than ever before. We have service provider customers that are actively mitigating and reconfiguring their networks due to three to five DoS attacks per day. They are mitigating DoS attacks on behalf of a customer, a peering partner or because they are worried about their own infrastructure. A DoS attack threatens all three... What makes the DoS problem tricky is if you are an endpoint under attack and your uplink is flooded, there is virtually nothing you can

do. You are dependent on your service provider to mitigate that attack as far upstream as they can get it or you are not available.

What is the source for most DoS attacks?

Who's doing it is always an interesting question. These attacks are massively distributed. That's what makes them so nasty. The attacker, whoever they are, can be controlling thousands of machines halfway around the world. One recent anomaly is very targeted attacks. There are those that are blackmailing others. The MyDoom attack was specifically going after SCO because the attacker didn't like the company.

Are service providers doing enough to thwart attacks?

They're really starting to step up. Service providers such as AT&T are offering DoS services. They are actively protecting the edge between themselves and other service providers, typically called private peering connections. And now they are starting to offer services to help customers protect their transport layer. [Editor's note: Sprint and MCI also offer DoS mitigation services domestically, as Telus does internationally.] It's natural for the service providers to sell these services because they own the bandwidth and the upstream area where mitigation should be. They also own the network where detection and trace-back needs to be.

In the past carriers have talked about how they've been sharing
See Arbor, page 42

EYE ON THE CARRIERS

Johna Till Johnson



I often remind equipment vendors that to sell to telcos they need to make two sales: First, sell the equipment the carrier thinks it wants; and second, sell the equipment that the carrier actually wants once it gets around to figuring out what its customers want. In other words, carriers often seem to be uniquely out of touch when it comes to understanding marketplace needs.

Never has this been more true than in the case of VoIP services. Most of the IT executives I've spoken with say they want their carriers to offer more than just TDM voice replacement when it comes to VoIP services.

Here's what IT execs are looking for — and not getting — from their service providers:

Carriers need to get a clue on VoIP services

- **Integration with QoS.** One of the biggest challenges companies have when rolling out VoIP services lies in ensuring the services will work effectively over the existing network. Integrated QoS offerings that guarantee priority for delay- and jitter-sensitive voice traffic, and let IT execs customize prioritizations for other apps, would be a plus.

- **Integration with messaging services.** Convergence really means eradicating the distinction between voice and other types of communication. Companies increasingly are viewing their e-mail, voice mail, and instant-messaging archives as facets of the same service — but carriers seem to think of voice mail as a stand-alone offering that has nothing to do with the other two. An offering that combined voice mail, e-mail and secure IM would pack a punch.

- **VoIP security services.** You've probably heard about the threat of SPIT — spam over IP telephony. SPIT goes beyond simple telemarketing, because the low relative cost of IP telephony could drive

Carriers often seem to be uniquely out of touch when it comes to understanding marketplace needs.

an order-of-magnitude increase in unwanted calls. (Imagine receiving 500 voice mails from those guys in Uganda soliciting money every morning, and you'll get the picture.)

Add to that concerns about viruses, privacy and the impact of denial-of-service attacks on the voice infrastructure, and there's the potential for a coming catastrophe in VoIP security. Interestingly, carriers have the upper hand when it comes to tackling many of these issues — if only they'd create offerings that play to that strength.

- **Integrated company-wide offerings are important.** IT executives don't want to have to deal with multiple individual carriers. "BellSouth has a great offering for Nashville, as does SBC in Chicago. But if I have to deal with five vendors to provide IP Centrex, it's going to be a mess," says a telecom manager for a manufacturing firm. "It has to be a national carrier to make it worthwhile."

Bottom line: If any of these offerings resonate, push your carriers to provide them. Don't assume they know what you want — see my point above about carriers being uniquely out of touch.

Correction: In my Nov. 1 column I referred to the Georgia Institute of Technology as "Georgia Tech University." As reader (and long-time Tech fan) Jason Williams points out, this is incorrect. I regret the error.

Johnson is president and chief research officer at Nemertes Research, an independent technology research firm. She can be reached at johna@nemertes.com.

Juniper

continued from page 41

plans to scale that to more than 1,000 PFEs per TX, he says.

Carriers can wait, according to Current Analysis' Ogle. They're currently not going much beyond 1T bit/sec.

T640 routers can be connected to the TX Matrix at distances of up to 328 feet, allowing for both local and distributed deployments, Juniper says. It runs Juniper's Junos operating system software with high-availability features such as Graceful Routing Engine Switchover, In-service Software Upgrades and Bi-directional Forwarding Detection.

The TX has been beta-tested at Deutsche Telekom (DT) and Korea Telecom, Jacobs says. DT's TCom fixed-line division routes more than 35 petabytes of data per month.

Asked if there were any production deployments of the TX among Juniper's 75 T-series customers, Jacobs says the company is not ready to announce production deployments of the system.

Cisco's counter

On the competitive front, Cisco says it can interconnect multiple CRS-1s — and its switching matrices — to achieve 92T bit/sec of capacity. Juniper cannot interconnect multiple TXs but says that customers do not require such a capability. Customers will want separate switching matrices for redundancy, Jacobs says, and they're confident that the performance and scale of the routers will grow.

The application of interconnecting switching matrices is a "philosophical difference" between Cisco and Juniper, Jacobs says.

The Juniper rollout comes days before Cisco fetes press and analysts from around

Deep in the heart of TX

Features of Juniper's multichassis router matrix:

- Connects four T-series routers to accommodate subscriber growth.
- Redundant optical connections for service availability.
- Performance of 3 billion packet/sec for service-level assurance.



the world at its annual analyst conference this week. At the conference, Cisco is expected to introduce a half-size, 640G bit/sec version of its CRS-1 router for smaller core networks — so Juniper's timing with the TX launch is no coincidence.

Base pricing for a TX chassis starts at \$175,000. A fully configured system can cost \$1 million, Jacobs says. ■

Q A

Arbor

continued from page 41

information regarding large DoS attacks. Is that still going on, and how important is it?

It's true service providers have been calling each other when DoS attacks strike because their networks are connected. Collaboration is absolutely important. They do help each other to get really bad attacks under control. It's a win-win. Also, Arbor is coming out with a product that will allow service providers to share in real-time a detailed description of these attacks. It's all about saving time and having a very efficient conversation between support engineers to get a DoS attack offline.

If I'm a user shopping around for a new IP service provider, what should I ask so I know I'm getting the best protection against attacks?

Ask if they have any assurances in their service-level agreement regarding DoS attacks. Ask what process they use when and if an attack occurs. Make sure the service provider can offer a solution. Customers need to understand that fighting DoS requires expense and manpower from the service provider, and customers should expect to pay a premium for it. And it's worth the premium.

What should companies be doing inside their own networks to reduce

vulnerabilities?

We're hoping large enterprises start segmenting the inside of their networks to boost the perimeters. The perimeters are not what they used to be so we want to create virtual perimeters on the inside of their networks.

Are corporations doing enough to thwart internal threats?

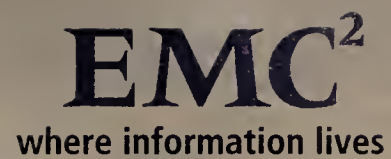
For an enterprise, security has always been deployed at the DMZ. They have firewalls and VPNs and other gear to stop hackers trying to get to their network. All security has been around the DMZ. Actually securing the internal operating network is new. A worm isn't a threat to the DMZ. It's a threat because once it's inside there is no firewall to stop it, and a worm has free reign to infect everything. The worm may have come in through your firewall, but more likely it came in on a mobile computer that someone brought into the office and connected to the network. A worm requires a new



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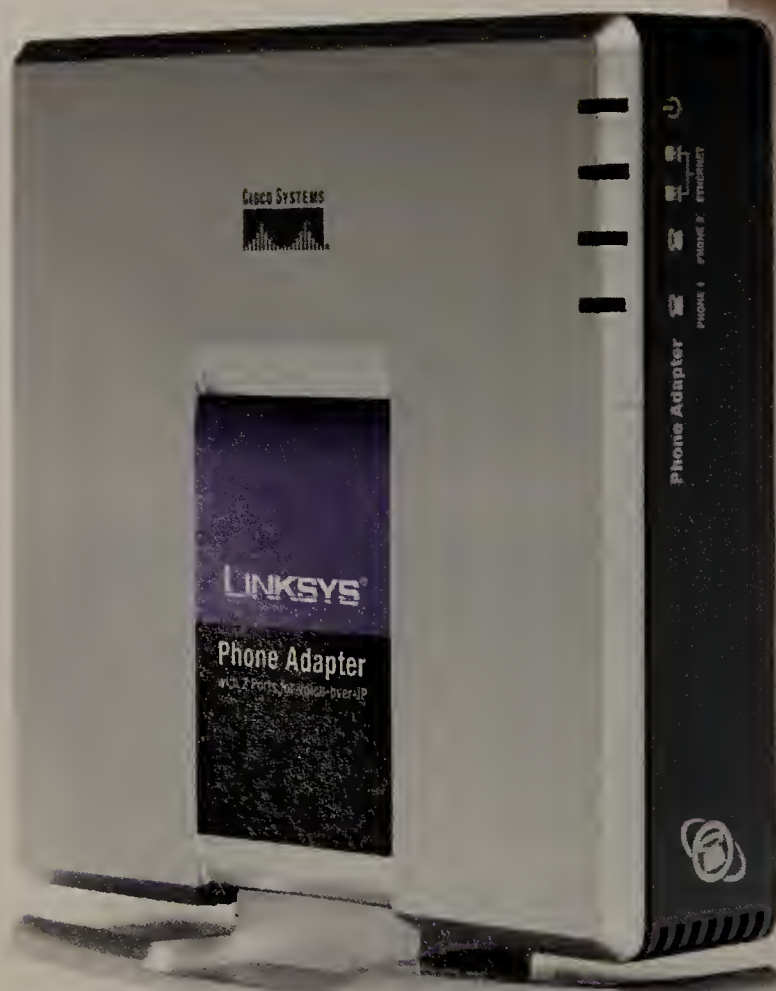
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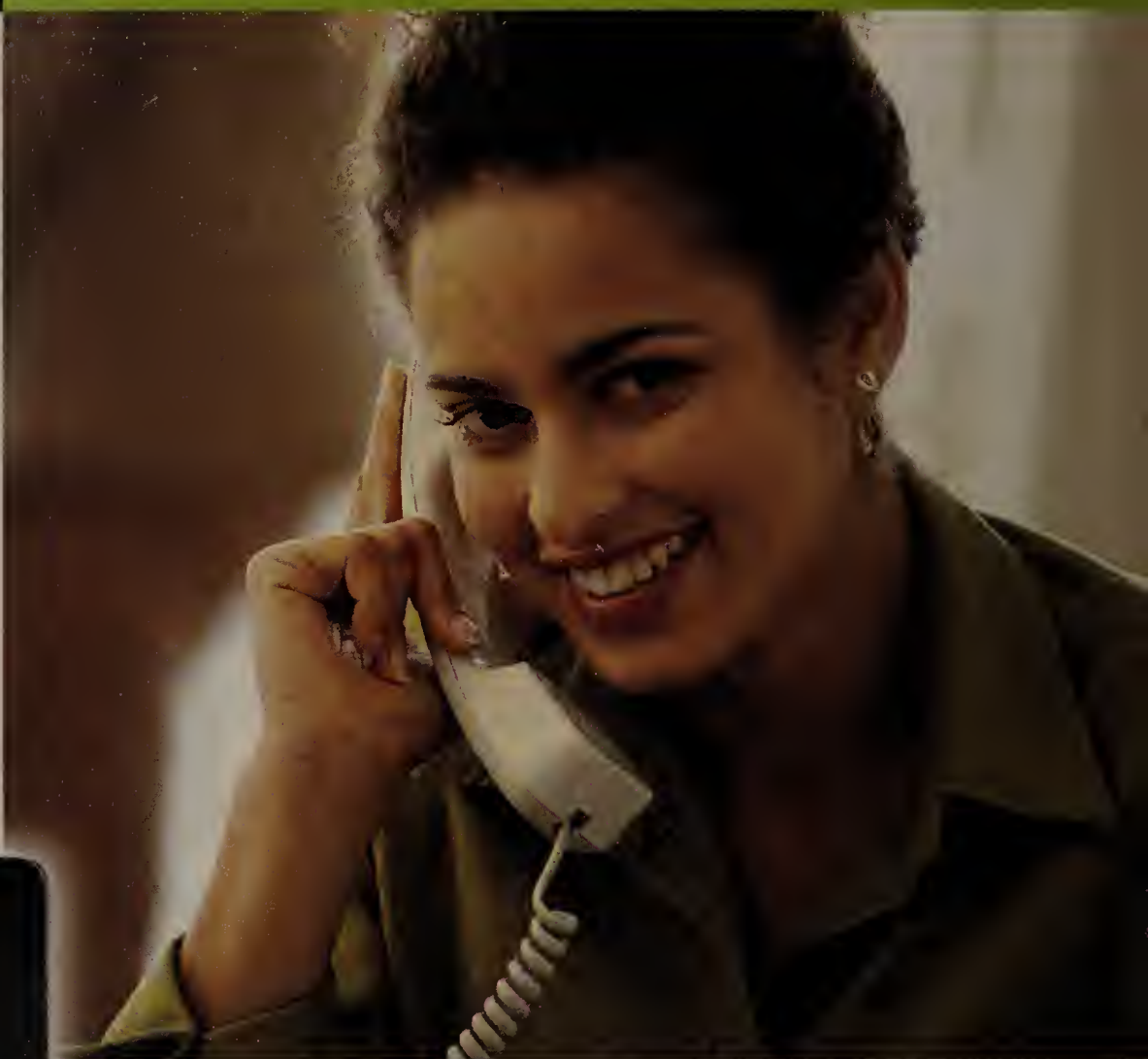
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■ PRODUCTS, SERVICES AND STRATEGIES
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EMC's SAN is an easy install

Network World editor plows his way through installation of the SOHO SAN in a mere 32 minutes.

■ BY DENI CONNOR

EMC, Dell, HP and QLogic have been busy touting easy-to-implement and affordable storage-area networks that even a small office administrator can install.

We put one to the test. *Network World* Multimedia Editor Jason Meserve installed and configured a \$5,000 EMC Clariion AX100 in 32 minutes last month at EMC's offices in Hopkinton, Mass. The AX100 debuted in May.

Traditional direct-attached storage can be difficult to manage and expand. A SAN provides better storage utilization by letting a network administrator view data on an entire SAN from any server.

The AX100 storage array, which comes



The EMC Clariion AX100 SAN is easy enough for savvy office managers to install without IT help.

with a single or dual controllers, has a minimum of eight 250G-byte Serial Advanced Technology Attachment drives for a total of 2T bytes. A single controller array will support two servers; a dual-controller array will support up to four.

Meserve — who only has experience installing PCs and network adapters — took the AX100 storage array out of the box,

unfolded the 11-step installation poster, plugged in the array and turned it on.

He did however ask for help lifting it out of the box.

After powering on the array, he connected it to Windows Server, already installed. Two Fibre Channel host bus adapters (HBA) — similar in function and installation to network adapters, they connect servers to storage — were also pre-installed. Meserve connected the array to the HBAs in the server via separate fiber-optic cables.

While the EMC AX100 was easy to install, along the way, Meserve asked EMC support engineers for confirmation that he was doing things correctly. He was.

EMC sells the AX100 through value-added resellers listed on its site (www.nwfusion.com, DocFinder: 4928), as well as outlets such as Dell, Computer Discount Warehouse, Tech Data and Avnet. If you go the latter route, you'll need to buy the HBAs and fiber-optic cable separately.

Meserve connected the AX100 directly to the server. If you have more than four host computers to attach, another option is to add a Fibre Channel switch. A QLogic eight-port SANbox 5200 stackable switch costs \$3,400 at dell.com.

Next, he launched the Navisphere Storage System Initialization utility and registered the HBA with the AX100 by adding an available IP address. Then he started Navisphere Express and opened Internet Explorer. In the browser navigation window, he entered the same IP address.

Step by step

The 11-step poster is clear and easy to understand. Initial steps include: prepare your site; prepare your server; and unpack the storage system. For brevity, EMC prepared the site and server for Meserve, who started on Step 3. From there, he performed these steps: install the AX100/AX100SC; connect AC power; power up the AX100/AX100SC switch(es) and UPS; and connect the storage system to servers (hosts) and a network. Next, he performed the software steps: initialize the AX100/AX100SC; and register servers with the AX100/AX100SC.

Guided by the poster, Meserve configured the storage array. He created a hot spare, pools of disk capacity and virtual disks (several physical disks lumped together to represent a virtual disk), then assigned the

EMC Clariion AX100 networked storage system

Price: \$5,000 for 2T bytes.

Install time: 32 minutes.

Pros: Affordable, easy to install and manage.

Cons: Requires some knowledge of Windows Server 2003, NetWare or Linux server administration.

Bottom line: Works as promised.

virtual disks to a server. (If he had more than one server attached to the SAN, he would have assigned it to a virtual disk.) he then configured event notification so that if anything went wrong he would receive an e-mail alert.

The last step was getting the network operating system to recognize the SAN. This took an extra 5 minutes. Because Meserve was not familiar with Windows Server 2003, EMC assisted.

Although Meserve's lack of Windows Server knowledge stopped him cold, most office administrators routinely map network drives and change passwords, and as such are experienced with Windows Server 2003 or Small Business Server.

The AX100 works with Windows, NetWare and Linux host computers. The storage array includes remote management and snapshot back-up software. EMC says it plans to offer RAID 10 support, which adds better performance and fault-tolerance to the system. The AX100 compares to HP's MSA1000, which the company introduced in October. ■

Short Takes

■ **Home and small office wireless LAN equipment** shipments grew 73% from 2003 to 2004, but revenue growth slowed, increasing only 21%, according to a new Dell'Oro Group report. Growth was spurred by back-to-school sales, but aggressive rebates and advertising promotions caused prices to drop, diminishing revenue. The report found 802.11g accounted for nearly 75% of total shipments, and ranked Linksys, D-Link and Netgear the top three vendors.

■ **Interlink** has launched **LucidLink Home Office Edition**, software that simplifies 802.1X Wi-Fi Protected Access wireless network encryption. The software automatically generates dynamic encryption keys that change each time a user connects to the network. LucidLink automatically configures D-Link and Linksys access points and makes adding and removing users a two-click operation. It supports up to three wireless users, runs on Windows XP, and works with most 802.1X-compliant access points and routers. The product costs \$99.

■ **3am Labs** has released a new version of **LogMeIn Scout**, its free remote access policy tool. Scout manages and detects instances of remote access products on corporate PCs. Version 2.0 increases the number of detected products to 24, including PCAnywhere, GoToMyPC, versions of VNC, Timbuktu and LapLink. New features include the ability to create policy-driven security and usage policies for the company's LogMeIn and LogMeIn Pro desktop remote control products.

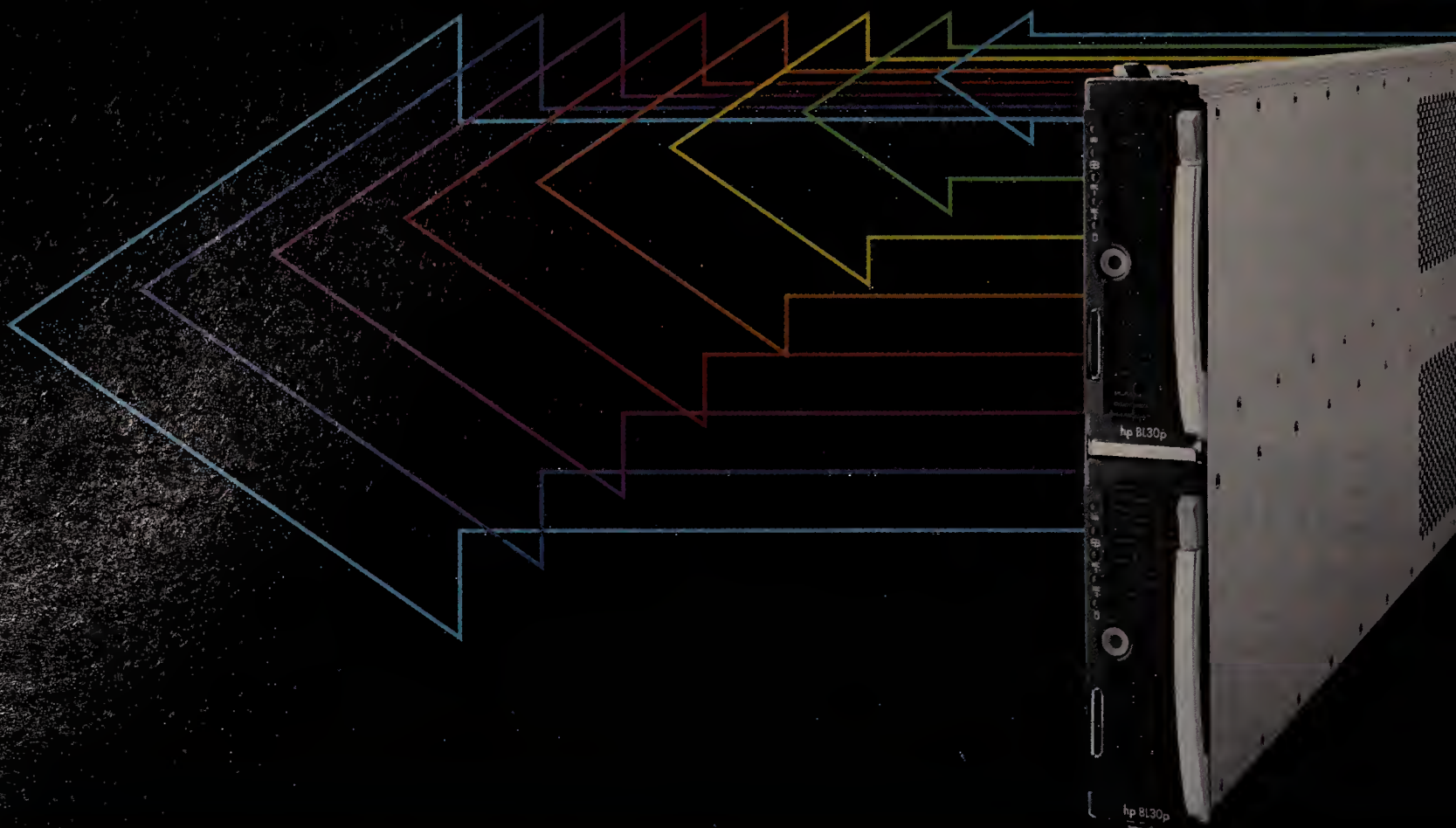
■ **D-Link** has announced an 802.11g access point for small and midsize businesses. Embedded clustering and self-management features let the D-Link AirPremier manage up to eight other AirPremier access points as a single system, so configuration information and management policies are automatically distributed and shared. The access points can self monitor and self heal by allowing wireless users to reconnect to the network through any AirPremier on the system. Other features include power over Ethernet, Wireless Distribution System, adjustable power, auto channel selection, load balancing and QoS. The access point supports 802.11x authentication and WPA with Advanced Encryption Standard encryption. The AirPremier costs \$350.



More online!

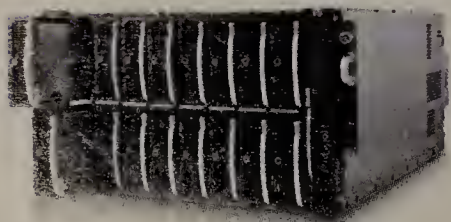
What can branch-office workers expect when one of these devices lands on their doorsteps? Our multimedia presentation shows Meserve in action as he installed the EMC Clariion AX100 into a mock LAN.

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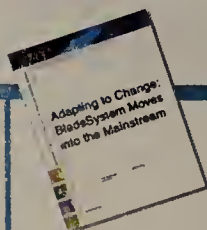
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Technology Update

■ AN INSIDE LOOK AT TECHNOLOGIES AND STANDARDS

Protocol extends reach of multicast

■ BY PAUL GILBERT

In a multicast network, sources and receivers register with their local rendezvous points to announce sessions and enable receivers to find content. Large multicast networks typically have several rendezvous points at different locations or domains.

The trouble is, there's no way for a rendezvous point to inform remote rendezvous points of all the sources it knows about. If a user in the U.S. is looking for a source in its network that is multicasting live TV from Europe, it will go to its local rendezvous point. Because the European source is not registered with the user's local rendezvous point, the user will not be able to access the session. The session will be available only to users who are local to the rendezvous point with which the source is registered.

Multicast Source Discovery Protocol (MSDP) solves this problem by enabling rendezvous points to inform each other about the sources that are known to them, thereby enabling access to these sources from any domain or location. An experimental protocol described in IETF RFC

3618, MSDP can be used between multicast domains and within domains.

A large organization with several rendezvous points located across the globe would use MSDP. In the scenario described above, the multicast session of live TV will begin in Europe and the source will register with its local rendezvous point. The local rendezvous point will then use MSDP to tell all the other rendezvous points on the network about the source and group that is using this session. When a user wants to receive this multicast feed, it will go to its local rendezvous point and request the data to be delivered from the source. The rendezvous point then will have the source and group addresses of this session and connect the user to the live TV.

Although MSDP originally was specified to connect different multicast domains, it also can be used with a technology called "anycast" within domains. Anycast is used when multiple rendezvous points are required for load balancing and redundancy. Sources and receivers will use their closest rendezvous point. If one rendezvous point fails, the other rendezvous point still will be available with no need for any convergence or configuration changes.

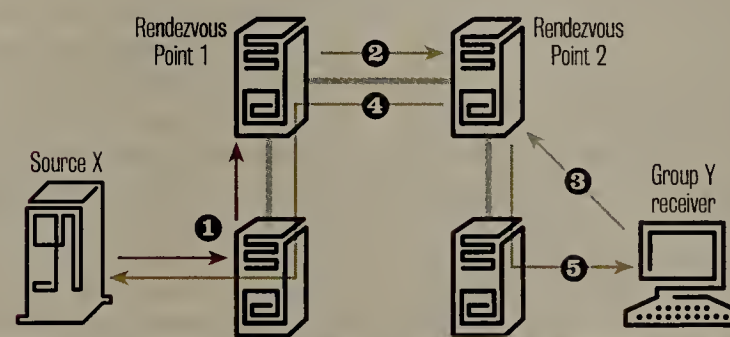
Rendezvous points set up peering relationships with other rendezvous points that have MSDP enabled. This peering relationship uses TCP for connectivity and to exchange control information.

When a new multicast source comes online, it needs to first register with its local rendezvous point. The rendezvous points receives an encapsulated data packet from the source's first-hop router and adds this information to its mroute table. This packet also is encapsulated in a

■ HOW IT WORKS

MSDP

Multicast Source Discovery Protocol lets rendezvous points inform each other about the sources that are known to them, enabling access to these sources from any domain or location.



- 1 Source X starts to transmit data to Group Y. The first-hop router encapsulates this data and sends it to Rendezvous Point 1. Source X and Group Y get registered with Rendezvous Point 1.
- 2 Rendezvous Point 1 sends a source-active message to Rendezvous Point 2 with Source X and Group Y information.
- 3 Group Y receiver wants to receive the data and sends a "join" message to Rendezvous Point 2.
- 4 Rendezvous Point 2 has the information in its source-active cache and sends a join toward the source.
- 5 Receiver joins group and receives data.

source-active message and is forwarded to all MSDP peers. The source-active message contains the address of the data source, the group address the data source intends to send to and the IP address of the rendezvous point.

When a rendezvous point receives a source-active message, it checks to see if it has any interested receivers for that group. If it does, the rendezvous point will send a "join" message to the source asking to receive the data. It then forwards the data it receives down the multicast tree to the receiver.

Rendezvous points that receive source-

active messages must cache them even if there are not interested receivers at that time. This prevents join latency. Rendezvous points periodically send source-active messages as long as the source is still active or immediately when a new source comes online.

MSDP is used widely in enterprise networks to ensure that no matter where and what rendezvous point a source joins, it can be reached throughout its network.

Gilbert is vice president of Router Management Solutions. He can be reached at paul@routermanagement.com.

Got great ideas

■ *Network World* is looking for great ideas for future Tech Updates. If you want to contribute a primer on a specific technology, standard or protocol, contact Amy Schurr, senior managing editor, features (aschurr@nww.com).

Ask Dr. Internet

By Steve Blass

We are evaluating the OpenVPN application for use as an SSL VPN solution. In order to use it, we wanted to plug in our own cryptographic service provider (CSP) for all cryptography operations (such as SSL, TLS and IPv4). While looking into the code of OpenVPN, we found a reference to the MS CSP interface in the CryptoApi but couldn't determine whether it is yet in use or not? In case it is not, could you please explain what we need to do to use our own CSP with OpenVPN for all crypto-

graphic operations.

You will have to work with the underlying OpenSSL modules to insert your own CSP. Depending on your target environment, you might find the CSP Perl package available at www.nwfusion.com, DocFinder: 4931, useful. It provides an interface to CSP and CA management OpenSSL command line tools. On Windows, OpenVPN can use the MS Crypto API to read certificates and

keys from smart cards. The Common Data Security Architecture framework documented at DocFinder: 4932 provides another set of tools helpful in extending and modifying your CSP implementation for use with OpenSSL in your OpenVPN implementation.

Blass is a network architect at Change@Work in Houston. He can be reached at dr.internet@changeatwork.com.

GEARHEAD INSIDE THE NETWORK MACHINE

Mark
Gibbs



Expanding waistlines and networks

net interface, and it comes with all the power cables you might need.

Based on a medical-grade power supply, it is intended to be ultra-reliable. Because cooling fans are a frequent failure point, the Network LifeSaver uses passive cooling. It also uses two independent RISC processors to run the embedded control system. And if all that isn't groovy enough, to control AC power the Network LifeSaver uses something the company calls "double-layer relay switching."

You use the Network LifeSaver's front panel buttons to set it up. The user interface is a 40-character-by-2-line backlit LCD that doubles as a status display. Configuration involves setting the IP address and port of the appliance, the gateway and subnet mask the network uses, and the admin password.

With that out of the way you can install the administrative software on a PC. This is a curiously naive installation: You are instructed to copy the files from the CD to anywhere you please and run the application. This is good because it's simple and there are no dependencies, and un-installation is clean. On the other hand, it is just not as slick as having an installer.

Once the admin application is running, you need to tell it the IP address and port

used by the appliance, and the subnet mask, IP addresses or names for the gateway, DNS servers, mail server details, polling frequency for automated tests and the appliance admin password.

Here's one of our few complaints: The default port the hardware offers is 0, but if you leave it at that and tell the admin application to also use Port 0, communication will not work and you won't know why — neither the appliance nor the admin utility tell you that this is an illegal port.

On successful connection the admin utility displays a diagram of the Network LifeSaver and its connections to the mail server, the Internet gateway and each of the eight "channels" — the devices for which the Network LifeSaver is supplying power.

You then can set up each channel with its own port and password, e-mail address for failure notification and tests. The tests can be made to any of the device's ports (or for that matter, any other device's ports) using standard or custom data. For example, you could create a simple ping of an address or execute a Web server test that checks if a page can be retrieved.

The penultimate part of the system is the client software — the utility that runs on Windows 2000 and XP systems and supports restarts, shutdowns and memory

monitoring (we would like to see support for Linux and interfacing to VMware to shut down individual virtual machines).

Finally, there's the Control Room Builder software. This is a customizable GUI that can initiate shutdowns and restarts, and display statistics gathered by one or more Network LifeSaver appliances and client software installations. You can dress up the display with graphics and shapes that can be linked to specific channels to show the status of that device.

The Network LifeSaver also comes with an optional Pocket PC application so you can manage the channels through your wireless Pocket PC device.

We really like this system — it is very useful and makes remote AC power control simple and flexible. In terms of scalability, we feel that the Network LifeSaver falls just short of a true enterprise system, as it isn't extensible through an API and doesn't support integration with other network management systems. That said, we love it!

The Network LifeSaver costs \$1,000 for the appliance plus the management software and Control Room application. The optional Pocket PC software costs \$130.

OK, back to cooking and eating. Tales of tighter clothes to gearhead@gibbs.com.

Well, there goes one of our favorite holidays, Thanksgiving, into nothing more than a memory of fun, a thickening of our waistline and a very useful new device on our network.

(Darn, but that was a fine turkey. We used a method for turkey cooking we learned from federal inmate No. 55170-054, aka Martha Stewart. The next one we cook will also be brined, which has got us all kinds of excited — actually about as excited as when we first deep-fried a turkey, a truly geek dining experience as it combined food with fire and the risk of bodily injury.)

Where were we? Oh, yes, that new device on our network. The gizmo in question is the Network LifeSaver x8 from Rich Media Technologies (see details at www.nwfusion.com, DocFinder: 4930). This is a power controller with integrated device and service monitoring, control and alerting.

Network LifeSaver is a snappy, fire-engineered box with two power inputs and eight power output sockets and an RJ45 Ether-



Cool Tools

**Quick takes
on high-tech toys**
By Keith Shaw

Axis launches network dome cameras

Axis Communications last week launched two network cameras in the "dome" style for professional security surveillance and remote monitoring. The Axis 231D and 232D devices connect to an IP network and provide full-frame motion JPEG video, along with pan, tilt and zoom capabilities. The 231D (about \$2,000) and 232D (about \$3,000) are available through Axis' distribution channels.

The systems include 18x optical zoom and 12x digital zoom features, an autofocus lens and a 1/4-inch interlaced CCD image sensor. The dome style lets the cameras perform a 360-degree pan and 90-degree tilt to cover viewing over a large area. Users can program 20 pre-set positions and one sequence (autopatrol) on the cameras. Other features include four alarm inputs and outputs, advanced event management, and security support (HTTPS and IP address filtering). More information is available at the Axis Web site.



Axis Communications' dome-style network camera is designed for professional security surveillance.

T-Mobile, Motorola aim to ease wireless messaging

Anyone who has tried to "tap tap tap" his way through a text message on a cell phone can tell you how annoying it is. Motorola and T-Mobile aim to ease this burden with the new A630, which includes a full qwerty keyboard tucked away inside a Bluetooth-enabled cell phone. The horizontal flip-open device also features AOL Instant Messenger, a 4x zoom digital camera, and integrated speakerphone. The A630 is available now for \$300 from T-Mobile.

IOGear offers Bluetooth GPS navigation device

IOGear last week launched its Bluetooth GPS Navigation System, hardware and software that provides driving directions to Bluetooth-enabled notebooks, PDAs or cell phones over the GPS network. The small device is compact enough for a dashboard or a briefcase, and offers up to 30 hours of continuous usage, IOGear says. The navigation software, which supports Windows ME, 2000 and XP, and Pocket PC 2002 or later devices, offers map data for the U.S. and Canada, a 3-D display option, voice directions, speed detection, alternative routing and trip time estimation. IOGear also offers an optional external magnetic antenna to boost reception. The system costs about \$300 — head to the IOGear Web site for more details.

Shaw can be reached at kshaw@nww.com.



Text messaging has never been easier thanks to the A630's qwerty keyboard.



You'll never get lost again with IOGear's GPS Navigation System.

enterprise SOLUTIONS



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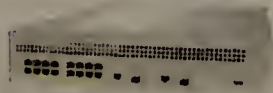
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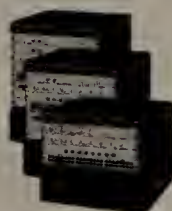
Mark Berkheimer
Manager of Information Technology
Harrisburg International Airport



Wireless
Networking



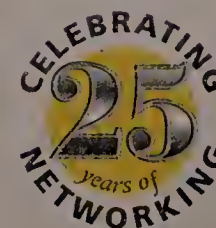
Security Switch



High Performance
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WAN Routing





ON TECHNOLOGY

Keith Shaw

Since you can't beat 'em, join 'em

With all of the measures you've instituted over the years, you probably presume your corporate network is secure. Firewalls, intrusion-detection systems and anti-virus scanners have helped prevent hackers and malicious threats from damaging company systems.

But all of that goes down the drain if an employee connects to your network through a compromised home PC. Evidence suggests that more hackers are using these backdoors to get into networks instead of trying to sneak by firewalls, IDS systems and other security gear guarding the ramparts. Employees who might be well trained in protecting their work laptops are not spending the money or time on equal protection for their home systems.

Sure, you could try to ban home PCs and other devices from your network, but that is a stopgap measure at best. With the holidays around the corner, you know employees are going to be trying to connect a range of new devices to your network.

The fact is the line between equipment used for work and that used at home has been blurring for years. With telecommuting and flexible work schedules, employees use whatever it takes to get the job done, whether it's a PC at home at 5 a.m., their own PDA from an airport at noon, or a work-owned laptop in a hotel room that evening. But for some reason work policies haven't kept pace. Many companies continue to operate under the mistaken belief that there is a clear line between work equipment and that used for personal use.

It's time to concede a battle you cannot win. Instead of banning employees' personal devices, allow them — but with the same protections you offer for company-issued equipment. Negotiate with your anti-virus vendor to provide low-cost or free copies of anti-virus software for employees' home PCs. Give personal firewalls to everyone who wants one. Spend time training employees on proper security practices for all their computers — not just the company-issued system.

AOL recently offered free anti-virus software for all of its members — we applaud this effort by a service provider willing to protect its members and educate them about security issues. If AOL can protect its members, corporations can do the same for employees.

It might represent more work and money, but the long-term benefits will be greater. A network that is more secure will mean less time spent cleaning up messes caused by attacks launched from compromised personal systems.

— Keith Shaw
Senior Editor, Product Testing
kshaw@nww.com

By any other name

I loved your story on spyware stoppers for enterprise-level networks (www.nwfusion.com, DocFinder: 4924). At my company, spyware is something I have to deal with almost daily. Users frequently call complaining about poorly performing PCs and when one of our IT guys checks it out, we often find spyware and other unwanted programs are responsible.

What makes me angry is Claria's assertion that its Gator products are legitimate software. Spyware by any other name is still spyware and, as such, unwanted in our corporate environment. My company has a "shoot on sight" rule in effect specifically for Gator and other similar malicious software. People can keep their passwords on a piece of paper or in a file on their PCs; we don't need the Gator eWallet to do it for us. Enterprise-level spyware blocking is long overdue and welcome. Gator is one reptile I'll gladly slay without a permit any day.

Joe Wojak
Senior user analyst
W.W. Norton & Co.
New York

More on SOAs

Your two-part series on service-oriented architectures ("Service-oriented hype to meet hard realities," DocFinder: 4925, and "Early adopters: SOA worth the effort," DocFinder: 4926) does a very credible job of balancing the numerous business benefits of SOAs with a candid portrayal of the equally numerous challenges and potential pitfalls of a loosely coupled architecture, especially the inevitable problems with performance.

The stories point out that performance issues will result from the volume of messages and in XML parsing operations. I agree, but that's not the whole story. What the series didn't cover was data integration or, more specifically, the magnitude of perfor-

mance degradation in the area of information access. Hard-wired applications, the mainstay of most mission-critical systems, are often built that way because of the need for high performance. By breaking that wiring and loose coupling it with an SOA, the performance of all SOA services will be pulled down to the lowest common denominator.

For those applications for which high performance is non-negotiable, information that must be accessible in real time must be pulled forward from the back-office layer into the services layer and into a mid-tier cache or data manager that reclaims lost performance. One way to accomplish this would be to utilize a purpose-built caching or in-memory data management product that is designed to deliver accelerated access to subsets of corporate data. It would be interesting to hear how SOAs deal with this bottleneck.

Tim Shetler
Mountain View, Calif.

Mail call

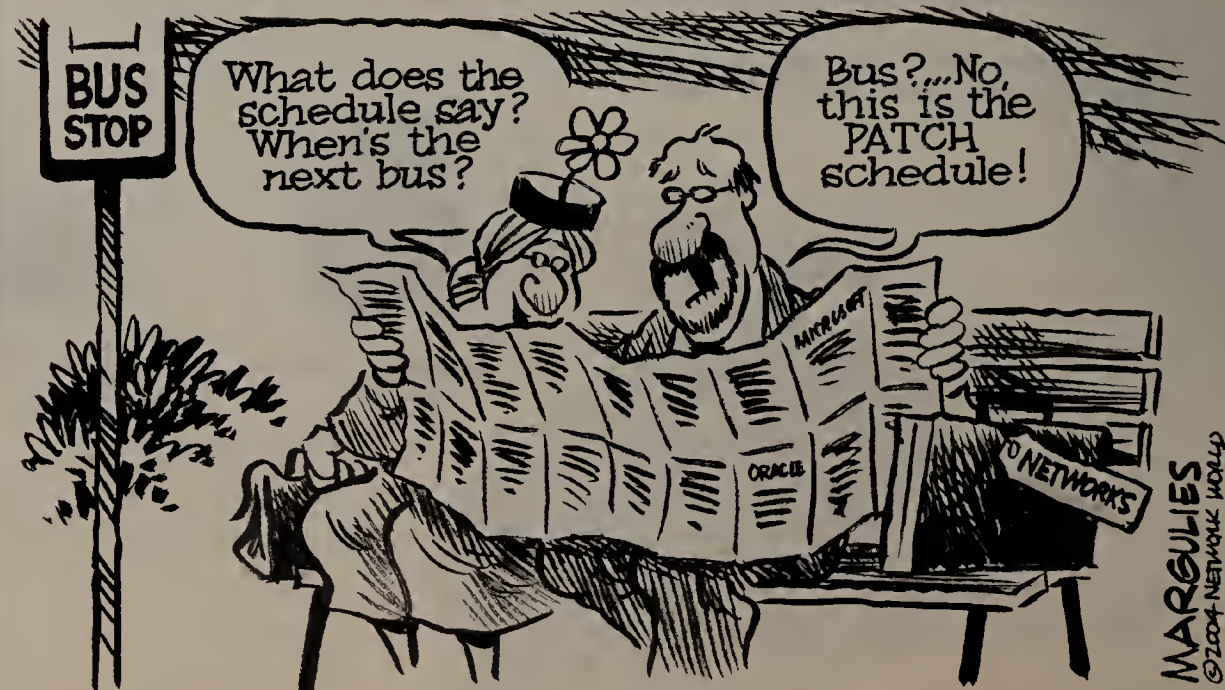
The renowned journalist H.L. Mencken campaigned vigorously that newspapers should serve as a voice for the community. Network World is committed to being a voice for the user community, but you can't have a dialogue if the communication is one way.

We call on you to use this space to respond to stories, air your opinions, share ideas on issues or problems, comment on proposals or rumors, and even warn peers about potholes you've had the misfortune to step into.

You can send letters to us at jdix@nww.com or mail them to Network World, 118 Turnpike Road, Southborough, MA 01772. Please include your name, city/state and phone number for verification. Letters may be edited for brevity and clarity.



More online! www.nwfusion.com Find out what readers are saying about these and other topics. **DocFinder: 4923**





BOTTOM LINE

Joel Snyder

As an avowed IPSec zealot, I generally recommend the technology for remote access. But the SSL VPN vendors have been building such great technology that there are now places where SSL-based remote access is clearly a better choice than IPSec. One of the best places for SSL VPNs is

in the ad hoc environment — places where your employees want to connect but would have to use someone else's computer, such as in an Internet café or at their brother-in-law's barbecue.

Because SSL VPNs require only a browser, you can use them from anywhere. The problem is that sensitive information might come through the pipe, and having that data sit on the hard drive either as a saved document or in a browser cache is dangerous. To solve this, the first generation of SSL VPNs used tools such as cache cleaners and cookie crumblers to try to obliterate traces that might be left behind. Moving forward from that primitive start, the new trend is toward virtual desktops — helper applications that track new files and browser changes, and unwind everything when you disconnect.

Unfortunately, even virtual desktops are not perfect. A huge problem is platform support. For example, at that barbecue, if your brother-in-law has a Mac, you can't run a virtual desktop. Or if he doesn't have the right version of Java or isn't running ActiveX, you could be out in the cold.

The story "Google search cache spawns SSL fear" (www.nwfusion.com, DocFinder: 4744) covers a more subtle problem: Applications that are running before the virtual desktop starts don't get unwound.

Securing endpoints in SSL VPNs

Google Desktop Search watches files and Web pages, and maintains its own cache. If it's running when you start the virtual desktop, your documents could be cached, accessible to the next person to use the computer, without you realizing it.

SSL VPN vendors will scramble to find a quick solution to the Google Desktop Search problem, but the general issue remains: Techniques such as virtual desktop never will be 100% effective at preventing leaks. Even if your goal is only to help users practice good computer hygiene, the potential for inadvertent disclosure is significant.

Network managers who cannot take this risk can use other technologies in their SSL VPNs, such as a virtual console (think Timbuktu, pcAnywhere or VNC) or terminal services (think Windows Terminal Services or Citrix) application to keep the sensitive data from ever being downloaded in the first place. Of course, all these solutions have their own cost and compatibility problems. If you're at the in-laws' PC, you might not have the possibility or desire to download and launch a Citrix client.

In every case, the best solution is one that supports your security policy, while not needlessly preventing access by legitimate users. Make sure you make your own decision, though, and don't let the magical marketing spin from some of these SSL VPN vendors convince you that the impossible is suddenly easy.

Snyder, a Network World Test Alliance partner, is a senior partner at Opus One in Tucson, Ariz. He can be reached at joel.snyder@opus1.com.

Techniques such as virtual desktop never will be 100% effective at preventing leaks.



TELECOM CATALYST

Daniel Briere

In Arthur Clarke's famed Rama series, everything happens in threes. The business world seemed to copy that for a long time, with the Big Three Automakers, the Big Three Long-Distance Carriers and so on. There always seemed to be three of anything major.

Today, everything is becoming about twos: primary and backup. Companies fight to be either the clear leader in a market or the primary alternative; being No. 3 doesn't cut it anymore. If there's a No. 3, it's only a matter of time before it either merges with No. 2 or 1 or is out-positioned by them. There's simply no cachet in being No. 3. Simply, the gap between Nos. 1 and 2 and No. 3 and the rest of the pack is growing, and where it's not, consolidation will make it happen. We've started to see snippets of this consolidation already, but we need a lot more so we can move out of this stage and get back to more widespread innovation that is needed to achieve true order-of-magnitude changes in the way things are done.

The problem with such close competitors is that the thinking outside the box becomes more narrowly focused. Larger players have more investment in the status quo, and their definition of winning the marketplace is easily reduced to simply beating the other player enough to win market share. The big advances are less likely to come easily because anyone with promise in today's capital-starved and tight customer marketplace has a hard time staying around long enough to have that big impact. Anytime a company has made a huge move in the market, it has disappeared just as quickly. AFC, bought by Tellabs. NetSolve and Actona, swallowed up by Cisco. The good companies will get eaten before they get too big.

With such a focus on just a few players, the chance for innovators to get to market is nigh impossible. We hear it all the time: "We will only buy from a major player." It's just getting worse, not easier out there.

We're now entering a period that likely will last longer than we'd

Land of the Giants or of the Lost?

like. It's the Land of the Giants, where the few big players will make baby steps and advance at a pace driven by each other rather than customers. Sure, they all talk about what customers want, but they really only need to outpace each other to become the "better option." So the measurement of success is smaller.

The rest of the market is the little guys with paper clips tied to string as climbing gear, struggling to just climb to the next level.

So these days the par for the course is for companies to team up. We're seeing the most interesting partnerships in the market, and it's not just two players getting together, but four, five and six players getting together to advance against a No. 2. And that's what's needed — bold business development and innovative combinations, where the speed and simplicity of the deal is to be emphasized.

So there will be two paths to success in the market: those tactical innovators who do something small and reasonable and get acquired before they get too big, and those strategic innovators who tackle the big guys by simply outbuilding their vision of the larger-scale market.

And the replaced players? They'll fall hard and fast. There will be several No. 1, 60% market share players who will be gone in a few years, outplayed by more nimble, smaller-but-teamed-up competitors. These forlorn market share leaders thus become part of the Land of the Lost, or simply Lost (to provide a more current pop culture reference).

Eat or be eaten. Times have not changed that much. But the ability of the market to sustain three large players seems to have passed. We're continually moving toward twosomes. If you aren't going to be happy with that outcome, then you need to start voting with your dollars to keep innovation alive or to speed the death of those who can't keep up.

Briere is CEO of TeleChoice, a market strategy consultancy for the telecom industry. He can be reached at telecomcatalyst@telechoice.com.

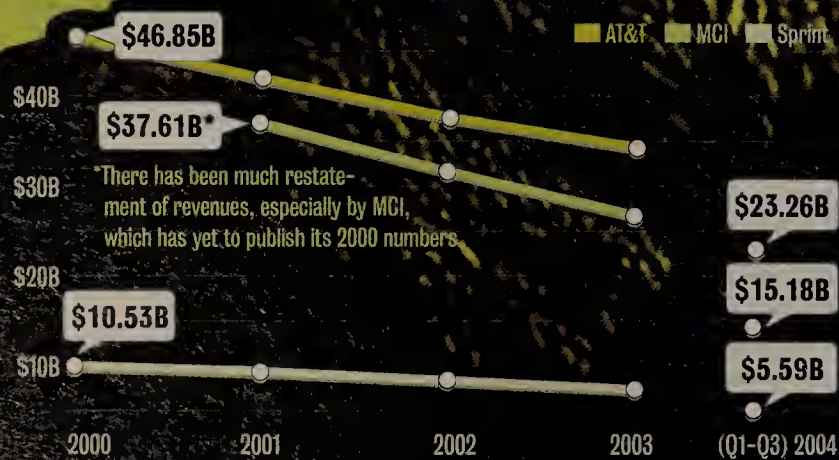
Start voting with your dollars to keep innovation alive.

Once-mighty interexchange carriers AT&T, MCI and Sprint now must evolve or face extinction.

The fate of the IXCs

Falling fortunes

Revenue for all three IXCs has plunged precipitously over the past few years.



Last quarter was not kind to the interexchange carriers. AT&T announced a loss of \$7.1 billion for the third quarter, primarily because the company is writing off more than \$11 billion in assets. AT&T also will slash 12,300 jobs this year. MCI reported a \$3.4 billion loss for the third quarter, primarily because of asset impairment charges of \$3.5 billion for the same period. The carrier is rumored to be seeking a buyer. Sprint had a \$1.9 billion loss for the third quarter because of previously announced asset impairment charges of \$3.5 billion and a \$1.2 billion write-down of its Multichannel Multipoint Distribution Service spectrum. All three carriers have watched their long-distance business crumble and are retreating from traditional consumer telephony. The question is, what will it take

for the IXCs to survive? *Network World* asked three telecom experts to share their perspectives on the moves these companies should take.



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Reinvention or extinction?



BY ALLAN TUMOLILLO

The history of telecom is replete with many once-vital companies that have failed to adjust to the times, technology and trends. The fossil record includes Western Union, a throwback to another era, Cable & Wireless as it

devolves into a single-island denizen, and 1990s newcomers such as PSINet, NorthPoint Networks, WorldCom and scores of others.

What separates the defunct and soon-to-be-defunct carriers from those more likely to survive is a willingness to adapt and acquire characteristics that let it compete and prosper in a changed environment.

The top three non-RBOC long-distance companies in the U.S. are AT&T, MCI and Sprint. Each is pursuing a different path to the future. MCI faces the rockiest — one that might lead it straight over a cliff, and a rather steep one at that.

AT&T: A new identity based on VoIP

Over the span of a single generation AT&T has gone from a colossus to a rather small and weak operator. It pursued the wrong strategies time and again for 20 years:

- Hanging onto Western Electric for years when it should have spun out on Day 1 after divestiture in 1984.
- Handing over its wireless licenses to the RBOCs at divestiture (which became most of Verizon Wireless and Cingular except for the assets that were McCaw Cellular, Vanguard Cellular and GTE Cellular).
- Spinning out its recently acquired McCaw Cellular/Vanguard Cellular, the one industry sector that demonstrated growth and value creation.
- Acquiring TCI and MediaOne under the reign of CEO Michael Armstrong in what had to be the most foolish set of acquisitions in the history of telecom, then admitting defeat and selling them at a loss to Comcast.
- Failing to join with other industry participants in a full-scale assault on the regulatory foundations of RBOC dominance, letting the RBOCs fight tactically as needed and ultimately be victorious.

Now that necessity is forcing AT&T's hand, we see at least an opportunity to create a new identity. AT&T's alliance in marketing its CallVantage VoIP platform with the cable TV industry is essential to the carrier. If this alliance can forestall cable operators from deploying their own VoIP platforms, AT&T becomes the partner to the cable industry and its target audience of more than 60 million households.

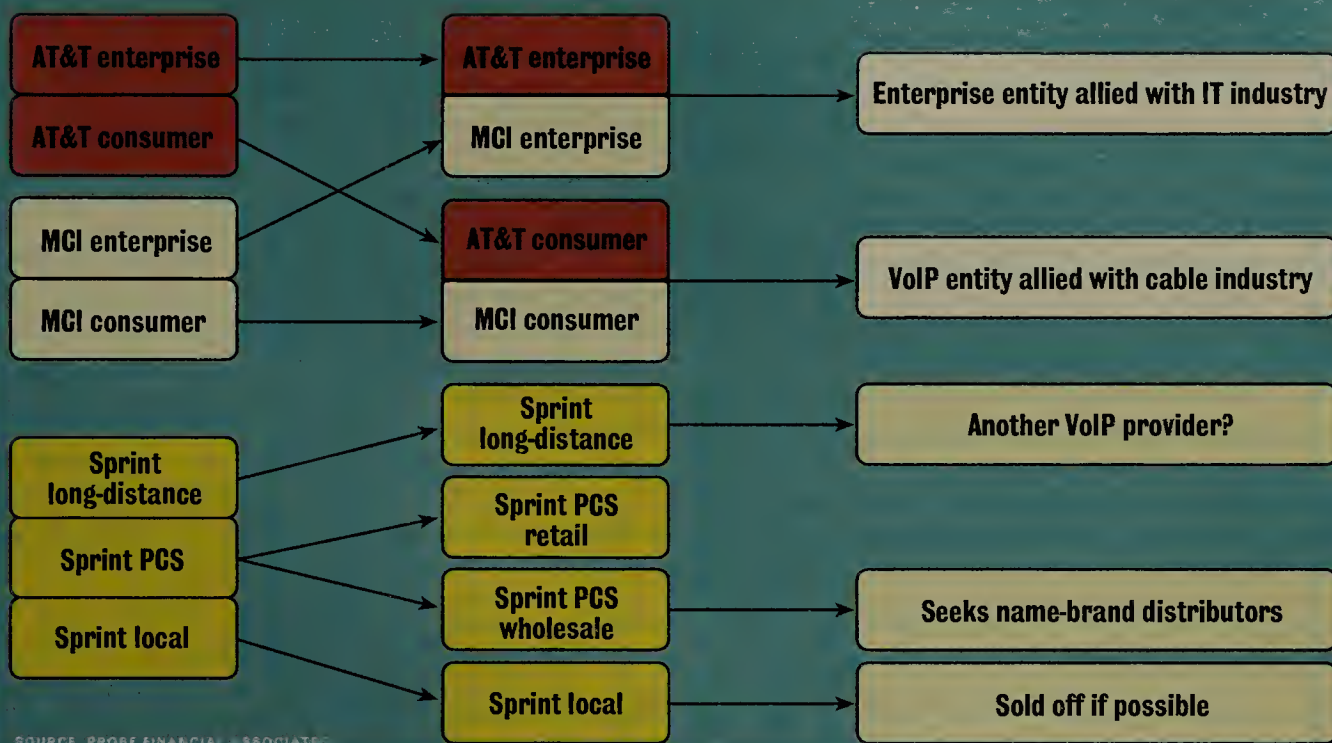
If this alliance stumbles, AT&T will falter with it. It cannot survive in the consumer sector as an independent provider of VoIP services except at bargain basement prices. Allying with cable firms that can bundle AT&T VoIP with basic cable, ISP services, broadband and HDTV might be the carrier's last chance at independence.

On the enterprise side, it is becoming obvious that a) companies are not spending the way they used to on networking and equipment; and b) the RBOCs are finding it difficult to translate success in the consumer markets into success in the enterprise markets. This is where AT&T might find a decent and interesting strategy that outflanks the RBOCs: ally with the big outsourcers.

When a company outsources IT to an IBM or HP or Computer Sciences Corp. (CSC), the network side is soon to follow. Banking giant Citigroup operates in more than 100 countries, has 200 million customer accounts and processes \$1 trillion in financial transactions every day. A CSC, HP or IBM would find an AT&T network invaluable

A possible future

AT&T and MCI split and recombine into a business network and consumer company. The enterprise-focused firm allies itself with IT outsourcers, pressuring the RBOCs. The consumer-focused company creates an alliance with the cable TV industry, also strengthening its position against the RBOCs. Sprint is headed to a three-way split. Its wireless assets become a retailer and a wholesaler. The carrier should spin off its local service when the more rural properties it controls still have value. Sprint long-distance evolves into a VoIP provider.



in reaching many of those 100-plus countries.

Because no one network exists that covers the globe, AT&T, which has the most experience globally, would be a natural fit. RBOCs, on the other hand, have almost no international capabilities and offer a poor fit for outsourcers.

MCI: Should it merge with AT&T?

When this operation was known as WorldCom, it was obvious to many that the firm had become delusional. After the fact, we realize that a lot of the delusion was actually cover-up of accounting "irregularities."

When Michael Capellas came in from HP, we thought the company would become a catalyst for the industry under his astute leadership. Boy, were we wrong. Apparently Capellas is content to simply have gotten MCI out of bankruptcy and now he wants to sell the company. That leaves most observers with little to say about strategy, other than it is one of self-immolation.

MCI is on the block, and the only question is whether anyone wants the company. A link with AT&T is the best outcome for MCI (and for AT&T). It would give the combined entity far more clout with cable providers by bringing to the table the combined consumer divisions of the two companies. It also would have the biggest enterprise network reach, which would force the RBOCs into spending heavily to replicate those assets. From the FCC's point of view, such a deal would encourage competition and investment.

Sprint: Wireless is the answer

Sprint is a three-headed beast with local phone companies, long-distance and mobile. Financial markets give little value these days to local and long-distance and give much value to wireless. Once Sprint ended the tracking stocks and issued a unified stock, the company's financial fortunes improved dramatically.

The carrier is offering its wireless network for wholesale re-branding by other entities. While it might end up competing against itself, it is reaching customers it would not

be able to capture on its own.

Sprint should offer the AARP a deal it couldn't refuse: wholesale cellular service to any and all of AARP's 35 million members, branded as AARP. After all, AARP has attacked the cellular industry's indifference to the senior population, its incomprehensible calling plans, and somewhat useless and thick cell phone instruction manuals.

Sprint's long-distance business is in decline and it has little in the way of metropolitan assets, so it will have difficulty competing with the RBOCs, AT&T and MCI for enterprise customers.

Sooner or later, we expect Sprint to become essentially a wireless company. Its consumer long-distance base is increasingly concentrated within its local phone company territories, and this is not a prescription for growth.

Although Sprint went through the process of combining its two tracking stocks, it will move to sell its local properties and simply exit the consumer long-distance business, writing down whatever assets it has to.

A new industry

IP technology separates service provisioning from access provisioning. In a sense this might help companies such as AT&T and begin to hurt companies like the RBOCs. This separation also forces down pricing. Vonage and Skype exist without access assets and offer services at low prices or in the case of Skype, free.

Service bundles are now the rage for their ability to cut pricing across the board. AT&T, especially if merged with MCI, can be a very large service provider allied with cable.

It is even possible to see a complete break-up of AT&T and MCI into a merged consumer company and a separate enterprise company, each pursuing different markets that have no logical connection to each other.

Tumolillo is COO of Probe Financial Associates, providers of independent investment research on telecom and IT. He can be reached at tumolillo.allan@probegrp.com.

The future is wireless, VoIP



BY SHALLY BANSAL STANLEY

Before the Telecommunications Act of 1996, the future looked bright for AT&T, MCI and Sprint. Executives at the interexchange carriers wore their rose-colored glasses through countless mergers, divestitures (even

trivestitures) and global alliances, and straight into the harsh realities of the post-dotcom era ... blind to what lay ahead. When the Telecom Act of '96 passed, all the pundits predicted that cable would be king and serve as the single line into homes and businesses. What they didn't foresee was that the local exchange carriers (LEC) were next in line for the throne. Verizon and SBC consolidated their power, their coffers and their customer bases. Their vision was crystal clear: grow through acquisition, diversify and focus on the consumer market.

The big three must look inward at their true assets and exploit their strengths to replace consumer and corporate long-distance revenue. The traditional interexchange voice business is disappearing fast and there's nothing they can do to stop it.

Wireless voice and data is booming. The wireless device obviates the need to have a watch, an alarm clock, an address book, a calendar, a pager, a calculator and a home telephone line. With cell coverage improving, thousands of people have disconnected their home phone lines and use their cell phones instead. Many businesses

have opted not to provide staff with office phones and simply have employees use cell phones. They save money and find it easier to have just one number.

Emerging services such as British Telecom's BluePhone in Europe extend the use of cell phones throughout homes or offices. Consumers love it and can't get enough. The enterprise is sure to follow. Verizon Wireless, Cingular, T-Mobile and Sprint PCS love it all the way to the bank. AT&T and MCI watch with despair.

It gets worse. The would-be kings of telecom are rising to the challenge. After making needed investments in their infrastructures, the consolidated cable companies are launching comprehensive VoIP services that are drastically driving down already rock-bottom long-distance prices. If that weren't enough, the LECs are bundling whatever long-distance market is left into their local voice services for an additional \$10 to \$15 per month. The IXC's simply can't compete on price and aren't able to justify higher prices for their services. They have to look at other means for survival.

Having sold off its cable interests and wireless business, AT&T clings to the hope that it can compete with VoIP providers such as Vonage. It promises to be a bitter battle. To compete, AT&T must quickly reduce its operating cost structure to match its new (smaller) revenue streams. The once all-powerful monopoly needs to transform itself into an emerging player to survive.

While MCI has emerged from Chapter 11, its true assets are harder to find. To its credit, the cash-poor, customer-hungry company managed to hold onto more of its customer base than anyone expected. Unfortunately, it wasn't enough.

A true voice, data and Internet-based firm, MCI faces stiff competition and price pressures on all fronts. Its one shining star, UUNET, promises to keep the company afloat meeting the growing demand for VPN services until it can find a buyer. It has been rumored that MCI has been put on the sale block with an asking price of \$6 billion. It may simply be a matter of time until MCI is sold piece by piece to the higher bidder.

Sprint, the underdog of the bunch, has managed to hold its own throughout a period when its competition simply imploded. Plagued with failed attempts to sell itself, first as a member of Global One (a partnership with Deutsche Telekom and France Telecom) and then later in its failed WorldCom/Sprint merger, Sprint has been forced to go it alone. Sprint admirably has retained its traditional corporate data customer base and survived the long-distance voice decline because of its growing wireless business. While the smallest of the three, Sprint's true assets are worth more as an ongoing concern than both of its more sizeable competitors.

AT&T, MCI and Sprint must determine what they will be called next. As IXC's become a thing of the past, these companies must either re-invent themselves or cease to exist. There aren't a lot of choices and MCI has already cashed in its chips. AT&T and Sprint should closely examine strategic partnerships or acquisitions that let them capitalize on the growth of wireless and mobile technologies.

The future is not bright, but a glimmer of hope remains.

Bansal Stanley is CTO of Greenwich Technology Partners, an IT professional services provider. She can be reached at ssstanley@greenwichtech.com.

Consumer VoIP is key for AT&T



BY THOMAS NOLLE

to have to change to survive.

What's going on is the commoditization of traditional services such as voice and even enterprise data. That translates to double-digit revenue losses unless carriers can tap new sources of revenue. The consumer market is essential to this initiative. Each of the IXC's has to create a role for itself in the broadband-enabled, content-directed, consumer future.

AT&T is the largest of the IXC's and has the strongest position with enterprise users. For AT&T, the optimum strategy is a two-pronged assault on the future content market. On the consumer side, AT&T must make its broadband VoIP offering a smashing success, guaranteeing AT&T a foothold with those users who make the broadband transition. That consumer foothold then can be developed to include content, video telephony and so forth.

For the second prong, AT&T needs to start moving its current enterprise users from low-level transmission services to high-level application services. The framework

for application services and the framework for consumer content distribution are much the same, and both are based on the Web services standards now being adopted worldwide.

Content is a two-sided game: There are consumers and suppliers. AT&T's current enterprise customers are the suppliers, and if they can be made to supply content through AT&T, then the maturing of AT&T's consumer VoIP offering into a broader content-based relationship can work.

For Sprint, it's all about wireless. Wireless services are holding their profit margins better, taking the pressure off in the near term. If Sprint starts offering 3G wireless handsets with at-home Wi-Fi capability, that pulls the carrier into broadband homes and gives it a shot at evolving content opportunity.

Sprint then can peddle its access to the highly mobile teen and young adult market to content providers to promote relationships with Sprint. It might be years before anyone watches "Lord of the Rings" on a wireless handset, but music videos and concerts are content too, and Sprint owns perhaps the best on-ramp to the market for those types of content with its youth following.

MCI has perhaps the clearest path and perhaps the hardest. The former poster-company for the Internet has fought through accounting scandals and Chapter 11. The network that was the center of the Internet is intact, but the company has faltered, and the "we're the Internet" association has weakened. MCI needs to become the Internet again. The carrier must demonstrate not only

that it can be a player in both the consumer and publisher side of the Internet but also that it can take the Internet to a new and profitable place.

Like AT&T, MCI has good corporate clients. Like AT&T, MCI has plans to move these customers up to managed and application services. But unlike AT&T, MCI has no strong consumer broadband offering, no VoIP. It's probably a good thing that the EU has reversed itself on the Sprint/MCI merger it once barred; MCI is probably the IXC most in need of a partner.

There will be a lot of IXC focus on the enterprise in the next year, a lot of talk about how moving enterprise buyers to higher-level services will restore profits. For a time, that's true. All the IXC's need a near-term profit boost, but they need a place in the consumer market — in consumer broadband — in the future or all the enterprise business won't stem the negative tide.

Unbundling might be dead, but every single IXC has the option to wholesale RBOC DSL at a modest discount. Bundle that with VoIP, with dual-mode 3G/Wi-Fi phone, with consumer electronics content delivery, and you have a business. There is life beyond voice, beyond legacy services, but not much hope within those old boundaries. None of the IXC's have to fail, but those that don't recognize the importance of the consumer/content market to their future probably will.

Nolle is president of CIMI, a technology assessment firm in Voorhees, N.J. He can be reached at tnolle@cimicorp.com.

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CLEAR CHOICE



TEST

Juniper's NetScreen Secure Meeting appliance

Juniper spreads security profile to Web conferencing

■ BY TRAVIS BERKLEY, NETWORK WORLD LAB ALLIANCE

If you're experimenting with Web conferencing, first look at a hosted service, such as WebEx or Microsoft Live Office. But the costs can add up quickly, especially if you have many users across your company engaging in Web conferencing. We found Juniper's NetScreen Secure Meeting appliance (SM-3000) makes both performance and economic sense for midsize to large firms looking to add Web conferencing abilities.

Simple setup

The SM-3000 is a 1U, rack-mounted appliance that connects quickly and easily into your network infrastructure. A serial console connection is used briefly to configure the basics: network configuration, choosing an administrator name/password and setting the host name.

The first time you connect, you will need to set the time zone and feed it your license key. From that point on, you use an SSL connection to drive the comprehensive and customizable Web-based dashboard that provides an excellent summary of what the SM-3000 is doing and how it's performing.

You can create and manage all your users in the locally stored database. The SM-3000 can authenticate users against several external directory services. We pointed the SM-3000 to a Microsoft Active Directory server and a Novell eDirectory

server, but the SM-3000 also can authenticate against generic Lightweight Directory Access Protocol, RADIUS and other directory services (see How we did it at www.nwfusion.com, DocFinder: 4934). You are free to define numerous roles within the SM-3000, defining who can simply participate and who can create new meetings.

The SM-3000 is flexible and lets you modify scores of settings to provide the level of security you need. On an internal deployment, you can relax browser cookie requirements and allow roaming addresses. But if you want the outside world to access the SM-3000, you might want to tighten things up, such as mandating longer SSL key lengths and not using persistent browser cookies.

Getting the users ready

Users can participate in the Web conference with a browser equipped with a Java Virtual Machine (JVM).

Meeting participants fall into two categories: authenticated or guests. Authenticated participants will authenticate to the SM-3000, locally or through one of your directory services. Once authenticated, users are greeted with a schedule of the day's meetings to which they are invited. If they have rights to create new meetings, buttons appear that can schedule meetings or launch an instant meeting.

Invitations are sent to external users (clients and customers) via e-mail. A link in the e-mail takes them to a sign-in screen for that meeting. The meeting number is encoded in the URL, and the participant must provide the generated password for the meeting and his name.

It is interesting that security must be relaxed from the defaults to allow guest users. The defaults specify that only authenticated users can participate in meetings, and only people who are invited can join. You first must let unauthenticated guests connect and then let meetings be joined with a password. For exam-

ple, if you wanted a client to join a meeting, he would receive an e-mail invitation to the meeting and how to link to it. He would connect as an unauthenticated guest and would only be allowed to join if he could supply the meeting password.

For true security, the invitation can be sent without the password.

The user who starts the meeting is called the Conductor and is the only one required to be an authenticated user. The conductor has control over all aspects of the meeting, such as when it ends and who has what permissions. As other participants join, they receive Viewer permissions and can watch everything that happens. There are two remaining permissions that the Conductor can choose to share, Presenter and Controller rights. Presenters can share an application from their desktops for others to view. If the Presenter would like someone else to remotely control the application, Controller rights are granted. In a team presentation, team members can take turns controlling the application.

While it's true that participants only need any browser with a JVM, if they want to be more than viewers, we suggest using Internet Explorer on a Windows machine. The system works fine on a Mac OS X device, but there are some known issues with the built-in Safari browser. If you run a meeting on various flavors of Linux, you can only be a participant. We used Red Hat and SuSE distributions.

Meetings with the SM-3000 revolve around sharing applications. There is a chat function built into the client, but that's it. The client is downloaded as participants join the meeting, so there is nothing to install on client machines. If you want to use a whiteboard, the conductor needs to launch the Windows Paint application. If you want to poll members, you're out of luck. But if you want to share applications, the SM-3000 works very well.

Presenters can share applications in a



Juniper's 1U Web conference appliance is easy to set up and manage.

full screen, but the best resolution is a modest size (1,024 by 768 pixels). The system can go higher, but the larger the presenter's desktop, the more bandwidth it takes to keep updating as application changes occur. If participants have a smaller screen, they can't see everything without scrolling. A setting on the SM-3000 lets you limit the color palette to 16 bits from 32 bits to save bandwidth.

Other drawbacks include no ability to record meetings, or the associated chat text for later playback. If the presenter just shares a PowerPoint presentation, it is easy to give the same presentation to another person at a different time. But if the meeting is more free form, such as drawing, chatting and working collaboratively, it becomes more difficult to re-create.

The SM-3000 excelled at transferring control to other meeting participants. This function makes the system a great way to remotely troubleshoot a participant's desktop. The advantage is that a Web browser is all that's needed on the remote machine for remote control to happen. Further, you can conduct an SSL-encrypted sharing session without the hassle of installing VPN or other security software ahead of time.

The SM-3000 might not be the ultimate Web conferencing device, but it does what it was designed to do very well. Easy to set up and manage, the system gets you up and running meetings in a short time. It shares applications very well and provides great flexibility in letting participants control the meeting.

Berkley is the manager for LAN Support Services at the University of Kansas. He can be reached at berkley@ku.edu.

Net Results

NetScreen SM-3000 Secure Meeting Appliance

OVERALL RATING
4.2

Company: Juniper Networks, www.juniper.net **Cost:** Starting at \$15,000 for 50 concurrent users. **Pros:** Easy setup; easy to manage; flexibility in meeting control. **Cons:** Cannot record meetings; no polling.

The breakdown

Setup 20%	5
Management 20%	5
Conferencing features 20%	3
Customization 20%	4
Client variety 20%	4
TOTAL SCORE	4.2

Scoring Key: 5: Exceptional; 4: Very good; 3: Average; 2: Below average; 1: Consistently poor

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CLEAR CHOICE



TEST

Server operating systems

Novell serves up an operating system winner with SLES 9

■ BY TOM HENDERSON, NETWORK WORLD LAB ALLIANCE

Our tests of Novell's SuSE Linux Enterprise Server Version 9 — we tested revision 9.1 of the server software — show it to be polished, faster and supporting a wider breadth of applications than previous versions we've tested. These advances are underscored by improved administration tools, compatibility with several CPU configurations, and connectivity with Novell-based add-on management and policy enforcement applications.

This version of Linux — which earns our Clear Choice Test designation — could make Windows administrators who are still hesitant about widespread Linux deployment to take serious notice.

Organizations using Microsoft's ASP.NET application infrastructure can port their applications to SLES 9 via the new SuSE Linux software developers kit. Novell's acquisition of Ximian brings a C# compiler to SLES 9 and compatibility with ASP.NET Web applications.

SLES 9 performs numerous dependency checks at application installation time via a revamped administrative interface, still called YaST (Yet Another SetUp Tool). Adding server applications and updates is simplified and safer. SLES 9 contains many server service-oriented applications, such as DHCP, PostFix Mail and DNS,

as have prior editions. This isn't a case of distribution becoming bloated, but the basic expectation set by Novell is that this server operating system fits several network and application server profiles.

Hardware detection has improved over previous SuSE Linux versions (see SuSE Linux 8.0 test at www.nwfusion.com, DocFinder: 4921). We installed it on several typical server platforms (see How we did it, DocFinder: 4922) and found that when a hardware vendor supplied a driver kit, detection improved dramatically. But when they didn't supply the kits, we received odd errors. SLES 9 displayed incorrect default kernel choice information when we installed natively on an HP DL360G3 dual-CPU server, but actually installed the right kernel. We found no abnormalities in hardware compatibility.

The default server applications installed comprise a minimal set of programs identical to all three supported CPU platforms. Happily, run levels and defaults initially were installed with the most conservative possible settings.

We applaud this methodology, as it forces administrators to choose what services will be available rather than turning them on automatically and causing potential security or network services interaction problems. Updated applications don't affect already-chosen defaults or subsequent security-oriented settings. Subsequent downloads can be spawned manually, or automatically through the YaST Online Updater server, citing either an internal or SuSE.com update source.

Most installers will choose more applications than the default settings provide, however. Making additional choices via YaST before or after installation — such as adding FTP support — puts in the desired application and checks dependencies so other libraries or components are also correctly chosen.

You can easily build secure server images for distribution to other servers on the network.

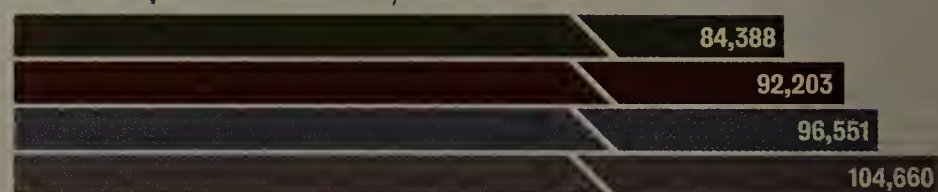
Novell's SLES 9 hits on performance across the board

Novell's SLES 9 server operating system posted serious numbers in our Web-based performance tests, besting previous operating systems tested in almost all tests (see past results, www.nwfusion.com, DocFinder: 4927.) The increase in transactions per second speaks to a strong Linux 2.6.5 kernel I/O implementation in SLES 9.

Transactions/second



Maximum open TCP connections/second



Maximum TCP connections/second



■ MSI AMD/64 server with one CPU
■ Micron/NetFrame server with two CPUs

■ HP DL380G3 server with two CPUs
■ HP DL580G2 server with four CPUs

Testing performance

Our performance tests — run across four server platforms — comprised a series of Web usage profiles, including:

- Maximum number of connections.
- Total sustained connections.
- Transactions per second.

SLES 9 bested all server operating system products we've tested in the Intel/Advanced Micro Devices categories (see graphic, above). As in previous tests, only default Apache and operating system settings were used in an IPv4 environment.

The increase in performance is largely due to the 2.6.5 Linux kernel SLES 9 is built upon. The generic AMD64 server

performance using a single CPU is outstanding, besting all previous operating systems tested, save one instance. This is especially noteworthy because past operating system tests were conducted on a dual-CPU Intel architecture. The startling increase in transactions per second also speaks to better kernel I/O as implemented in SLES 9 and gives an indication of Web transactional I/O of static pages.

Managing SLES 9

System management provided by YaST is the core, GUI-based management application. Administrators can manage

See Novell, page 60

Net Results

SLES 9

OVERALL RATING
4.63

Company: Novell, www.suse.com **Cost:** Single server with up to two CPUs is \$350 annually. Single server with up to 16 CPUs is \$900 annually. **Pros:** Improved management; great performer; flexible hardware and software support. **Con:** Some minor installation irritations.

NetworkWorld
CLEAR CHOICE

The breakdown

Installation/integration 25%	4.5
Performance 25%	5.0
Management/administration 25%	4.5
Security 25%	4.5
TOTAL SCORE	4.63

Rating Key: 5: Exceptional; 4: Very good; 3: Good; 2: Below average; 1: Consistently poor



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Novell

continued from page 58

Apache, Samba, Lightweight Directory Access Protocol (LDAP), Network File System, users, package/application installation, the firewall and most other adminis-

trative/management settings. YaST compares favorably with Windows Server management, albeit without strong "wizards" that Windows Server editions offer. Those desiring the command-line interface method can manage elemental services, such as DNS, LDAP, DHCP and Apache.

SLES 9 also can create multiple instances of Linux within the same hardware (similar to virtual machines) through the User Mode Linux (UML) feature. We spawned multiple sessions with UML that shared media and hardware resources using a method vaguely similar to VMWare ESX

Server. The UML virtual machines don't have the same depth of control that VMWare offers, but do let you partition resources (CPU, disk, identity, applications and hardware) that can permit logical isolation of desired resources.

SLES 9 also can partition sessions via UML, so an application hijack can be contained by the permissions, password or security established for that session, rather than for the system as a whole. This means multiple instances of applications, such as LAMP (Linux/Apache/MySQL/Php-perl) sessions, can be hosted more safely.

In turn, the UML instances can be coupled to the security established through the certificate authority and remote sessions via OpenSSL and VPN capabilities session policy managed through YaST.

Server connectivity enhancements include the Novell/SuSE exclusive implementation of Service Locator Protocol (SLP), similar to and compatible with the Apple-championed Rendezvous Protocol. We found SLP simple to use, although certain Layer 2/3 Ethernet switches must be reconfigured to use it. SLP enhances directory network service resource lookup and is a good alternative to DNS and Session Initiation Protocol for served applications.

Several features make SuSE a Clear Choice winner. It outperforms the competition. Its compatibility list is strong. Even though there are a few exclusive items, it would take quite some time to assemble the open source components Novell has put in the SLES 9 framework and make them all run together cohesively. Moreover, the YaST improvements will give GUI comfort to those who don't want to memorize server application variants. The combination gives SLES 9 far wider appeal than previous versions.

Henderson is principal researcher for ExtremeLabs of Indianapolis. He can be reached at thenderson@extremelabs.com.



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NW Lab Alliance

Henderson also is a member of the Network World Lab Alliance, a cooperative of the premier testers in the network industry, each bringing to bear years of practical experience on every test. For more Lab Alliance information, including what it takes to become a partner, go to www.nwfusion.com/alliance.

Other members: Mandy Andress, ArcSec; John Bass, Centennial Networking Labs, North Carolina State University; Travis Berkley, University of Kansas; Jeffrey Fritz, University of California, San Francisco; James Gaskin, Gaskin Computing Services; Miercom, network consultancy and product test center; Christine Perey, Perey Research & Consulting; Barry Nance, independent consultant; David Newman, Network Test; Thomas Powell, PINT; Joel Snyder, Opus One; Rodney Thayer, Canola & Jones.



Wireless Computing Devices

E-mail Newsletter

Wireless goodies for your holiday stocking Reader - Message (Plain Text)

File Edit View Insert Format Tools Actions Help

From: NW on Wireless

To: Reader

Subject: Wireless goodies for your holiday stockings

Wireless goodies for your holiday stockings

By Keith Shaw

Network World Wireless Computing Devices Newsletter

In case you missed it, Network World published its fifth annual "Cool Yule Tools" holiday gift guide, produced by yours truly. The guide highlights our favorite high-tech toys and gadgets from the year, and offers gift-giving suggestions for overworked network executives.

The guide always has its share of wireless devices, PDAs, smart phones, etc., and especially devices for the mobile traveler. Here are a few of our favorites from this year's guide:

- * Nokia 6820 cell phone
- * HP iPaq HX4705 Pocket PC
-

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Strategies

■ CAREER DEVELOPMENT
■ PROJECT MANAGEMENT
■ BUSINESS JUSTIFICATION

Raising a glass to IT alignment

Diageo North America's CIO describes how the drinks maker uses technology to drive brand growth.

■ BY BARBARA CARLINI

Diageo's IT organization is going through a period of change. At the core of our transformation is our vision of complete IT and business alignment. We're on a journey to become a seamless extension of our business, helping to drive top- and bottom-line growth.

Formed in 1997 by the merger of Grand Metropolitan and Guinness, Diageo is the world's leading premium drinks business, encompassing top brands such as Smirnoff, Johnnie Walker, Guinness, Baileys and Beaulieu Vineyards. And while Diageo trades in more than 180 territories globally, North America represents some 37% of our operating profit.

When I joined the company as North America CIO in 2001, we were in the midst of our Seagram acquisition and had just sold our Pillsbury and Burger King units as part of our strategic realignment behind premium drinks. This rapid series of mergers and acquisitions left Diageo with disparate systems, environments and technologies. We needed to establish a common foundation across our business units through an integrated platform.

My first task was to integrate our networks and systems with those of the newly acquired Seagram business. Part of this effort involved delivering a standard operating environment to all 3,000 Diageo North America employees. Everyone now uses a Compaq Evo laptop or desktop running Windows 2000, Outlook 2000 and Office 2000 software. We also standardized desktop images to cut down on unsupported software installations. With Managesoft 6.9, we can upgrade systems and software all at once and remotely, whereas previously this was a manual process. Our employees have greater mobility and are able to work seamlessly from any of Diageo's 150 locations worldwide.

We implemented SAP in 2002 and embarked on a multi-phased effort to standardize our infrastructure from four ERP environments to one and build a common operating language across our business. In 2003, we decided to outsource our global infrastructure and technical support services to IBM, and the development of one ERP platform to Accenture. This wasn't just about cutting costs; it was about finding the right partners with the right mix of technical expertise and capabilities. Engaging IBM and Accenture has freed up my team of more than 140 IT professionals to design and deliver solutions aimed at the front end of the business.

We created an engagement role that is dedicated exclusively to building relationships and working day-to-day within the business to truly connect with our brands and their goals. For each of Diageo's 11 functional business areas, there are one or two engagement liaisons who identify opportunities where technology can add business value.

The sheer volume of projects our IT organization manages spurred creation of a North America IT Project Management Office. When I came onboard, there were 128 active projects underway. We had to prioritize to ensure we made wise technology investments.

We have 34 active projects in North America, all reviewed and approved by a cross-functional executive steering committee. Every initiative is evaluated based on its business value,

including revenue enhancement, cost reduction and business-focus alignment. This helps us ensure the IT team is truly focused on driving growth across the enterprise.

Understanding our business

People are our greatest asset, which is why we heavily emphasize continuing education, including Project Management Institute certification and participation in technology and business courses.

Diageo's Biz Eye program was created to bring IT closer to the business through marketing and brand presentations and product demonstrations. Our IT team members also spend time helping administer customer surveys and assist with merchandising to experience firsthand, for example, what the holiday season is like for our sales teams.

Networking activities that connect us with our peers can yield valuable insights. I encourage my team to get involved in executive leadership programs like the Society for Information Management's (SIM) Regional Leadership Forum. I am active in SIM's Advanced Practice Council CIO workgroup and serve on the board of Green Mountain Coffee.

Working closely with the business, we have invested in technologies that are helping expand Diageo's brands, such as tools that help our sales teams and distributors make more informed decisions. A full SAP implementation, now complete for our spirits, Diageo Chateau & Estates Wines and Guinness USA businesses, has improved our ability to manage and record transactions. ERP tools and Web-based technologies also are enhancing our supply chain by streamlining the order and shipping process and speeding delivery times.

We recently launched a world-class business intelligence platform, Power to Market, or MPower, that serves as a unified foundation for analyzing financial and customer data. By providing a single data warehouse repository for customer and sales metrics, the system increases overall productivity. Nearly 1,000 North America employees have access to MPower, with the ultimate goal of offering the tool to our strategic distributors starting in 2006.

Strategic technology investments such as these are helping Diageo create a more efficient sales and distribution process. We also recently established a Distributor IT Council of CIOs from our strategic distributors in North America. The CIOs meet directly with our IT leadership teams to collaborate on defining technology strategies and addressing the technological challenges that face our collective businesses.

Our IT team also plays an important role in advancing Diageo's commitment to social responsibility, which is woven into everything we do. All Diageo brand Web sites comply with country- and even state-specific advertising and marketing regulations. We also confirm that site visitors are over the legal purchase age for alcohol beverages in the state or country from which they access our sites.

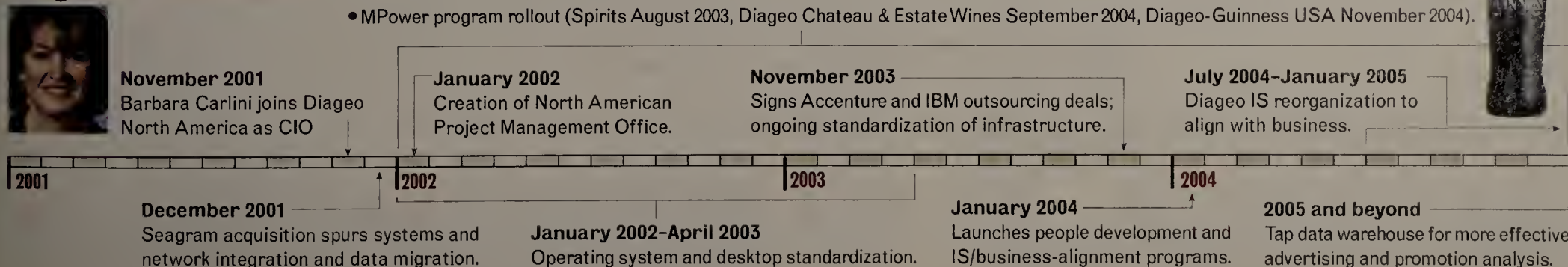
In an increasingly competitive spirits marketplace, investment in technology is a central part of our global strategy. We now have the infrastructure and tools in place on the back end. Our ability to deliver information and integrate data will be the driving force behind our future growth.

Carlini is CIO of Diageo North America. She can be reached at na.is.com munications@diageo.com.

Diageo's IT milestones

2002-2004

- ERP rollout (Spirits July 2003, Diageo Chateau & Estate Wines August 2004, Diageo-Guinness USA October 2004).
- MPower program rollout (Spirits August 2003, Diageo Chateau & Estate Wines September 2004, Diageo-Guinness USA November 2004).



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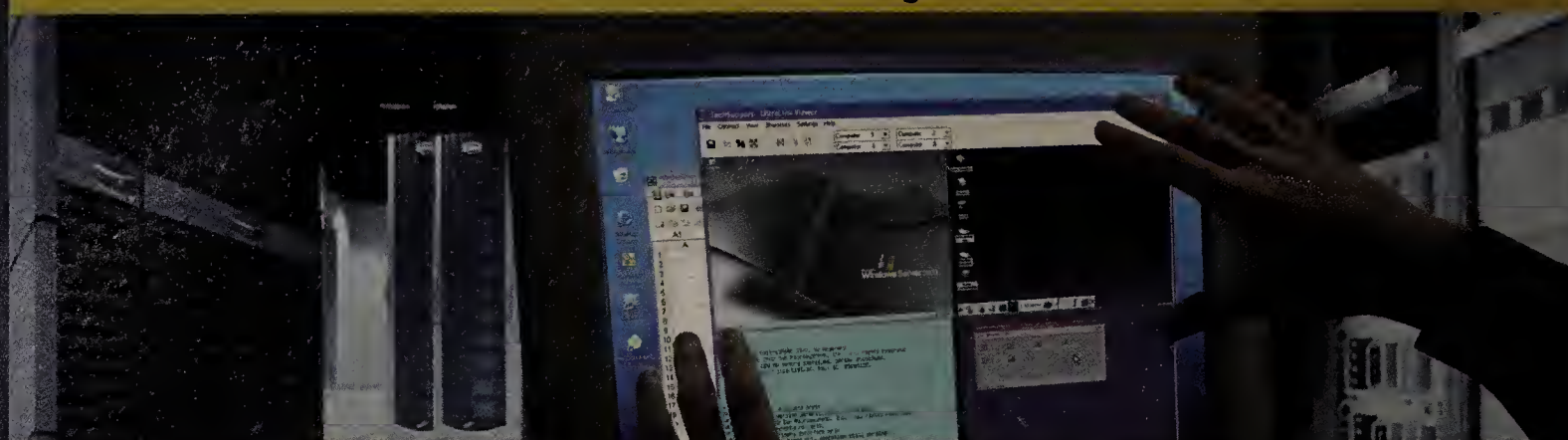


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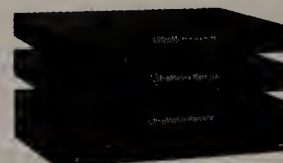
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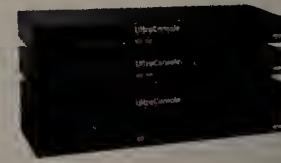


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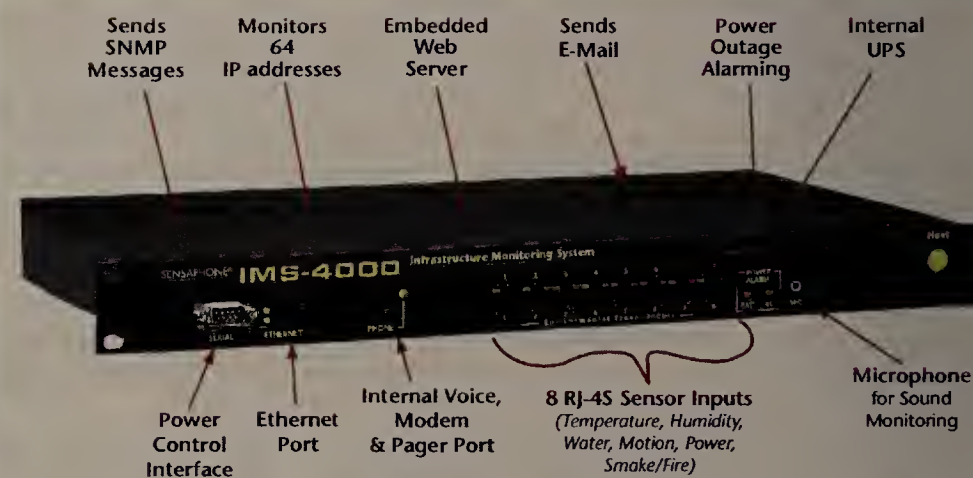
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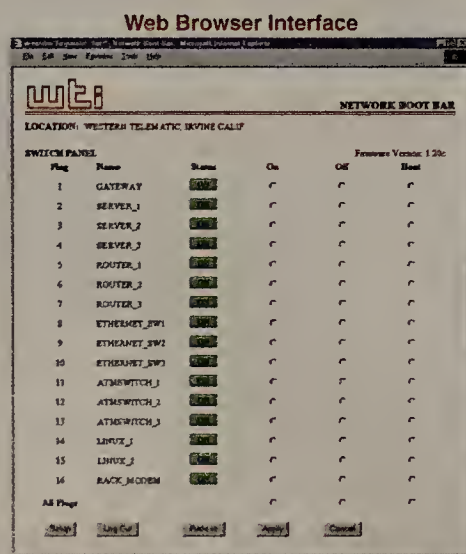
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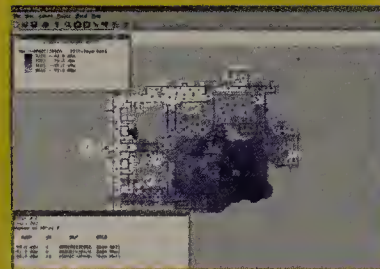
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Seeking qualified applicants for the following positions in Collierville, TN: **Senior Programmer Analyst.** Formulate/define functional requirements and documentation based on accepted user criteria. Requirements: Bachelor's degree or equivalent* in computer science, MIS, engineering or related field plus 5 years of experience in systems/applications development. Experience with designing/coding GIS applications using MapQuest Geolocate and/or ESRI server GIS products also required. *Master's degree in appropriate field will offset 2 years of general experience. Submit resumes to Tim Ames, FedEx Corporate Services, 80 FedEx Parkway, 2nd Floor Horizontal, Collierville, TN 38017. EOE M/F/D/V.

Systems Analyst needed for Software Development, Services & BPO firm located in Burlington, VT. Job duties include: Analyze, design, develop, test, and implement web-based applications that link to databases for business clients located throughout the U.S. Extensively work with data warehousing applications. Engage in performance tuning and optimization of databases. Use Oracle, MicroStrategy, Business Objects, Teradata, and COGNOS. Applicant must have B.S. degree in Computer Science, Business, Math or Engineering. Applicant must also have 2 yrs. exp. in the job duties described above or in any computer related occupation which must include skills listed above. 40hrs/wk, 8am-5pm, M-F, \$65,000/yr. Send resumes to: Job No. 29899, P.O. Box 488, Montpelier, VT 05601-0488.

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Programmer/Analyst needed for Software Development, Services & BPO firm located in Burlington, VT. Job duties include: Analyze, design, develop, code, test, and implement computer applications/systems for clients located throughout the U.S. Use Visual Basic, Oracle, Clarify, TIBCO, PL/SQL, and SQL Server. Applicant must have B.S. degree in Computer Science, Business, Math or Engineering. Applicant must also have 2 yrs. exp. in the job duties described above or in any computer related occupation which must include skills listed above. 40hrs/wk, 8am-5pm, M-F, \$65,000/yr. Send resumes to: Job No. 29933, P.O. Box 488, Montpelier, VT 05601-0488.

Sr Software Developers/Engineers with BS in CS, IS, Math or Engg and 3 yrs progressive development exp in current MS operating system environments using Windows. One position requires 1 year web-based exp with .Net, C#, Java XML, SQL, VB and Windows 95/98/NT 2000. One position requires 1 year exp with Java, J2EE, Corba, and SQL. Resumes only to B. Ashmore, Advanced Solutions, Inc., 1510 Klondike Road, Suite 400, Conyers, GA 30094

Programmer Analyst

Plan, develop, test, document computer programs; consult with user to identify operating procedures for workflow, financial & medical applications; determine feasibility, cost/time required; convert project specs, prepare flow charts using Visio, Rational Rose; enter program codes/commands; detect syntax/logic errors written in Delphi, Java & RDBMS (MS Access, SQL Server 2000); use Visual SourceSafe, CVS. Req. BS Comp. Sci., Applied Math, related or equiv. & 2 yrs. exp. Resume to HR, SDA Software 11301 Coolwood Rd. Louisville, KY 40223.

IT specialists wanted by Deligent LLC to develop applications using Oracle, SQL, VB, Java, C/C++, SAP, AS/400, Developer 2000, Windows NT, etc. Minimum is BS/MS with IT experience. Travel maybe required. Competitive wage with benefits. Apply at jobs@deligent.net. EOE.

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S/W Engineers - Dvlp & support S/W to process & analyze magnetocardiographic (MCG) signals: digital signal processing, ODBC prgmg, data acquisition, communication w/ SQUID electronics, real time data display, GUI & debugging. Use Visual C++, SQL, multithreading prgmg, Visual Studio C++, RDBMS, MFC, DAQ, Win SDK. Comp Sci/Engg & exp req'd. Send resume to CardioMag Imaging, Inc., 4th Fl, 450 Duane Ave, Schenectady, NY 12304. EOE

Radio Frequency Engineers needed. MS or equiv. and rel. work exp. Duties include: Analyze, design, implement, optimize, & enhance wireless telecomm. networks. Link budgets analysis & system dimensioning for coverage & capacity. Oversee & guide the work of Assoc. & Design Enggs. Position may require travel. 3 yrs of Radio Frequency exp with at least 2 yrs Nortel equip. exp. Send res., ref., & sal. req. to IT Wizards Inc., 181 State St., Augusta, ME, USA 04330.

SYSTEMS SOFTWARE ENGINEER to provide on-site consultancy to analyze, design, develop and implement systems software in web architecture using Java, JSP, WebLogic, Oracle, DB2 and WebSphere for J2EE applications in objected oriented and Windows environment. Require Master in Computer Science/Applications and three years experience in the job offered or any experience providing skills in the described job duties. 40% travel to client sites within the U.S. required. Competitive salary and benefits, 40-hr week, M-F. Mail resume to: Human Resource Manager, 4C Solutions, Inc., 1201 7th Street, East Moline, IL 61244.

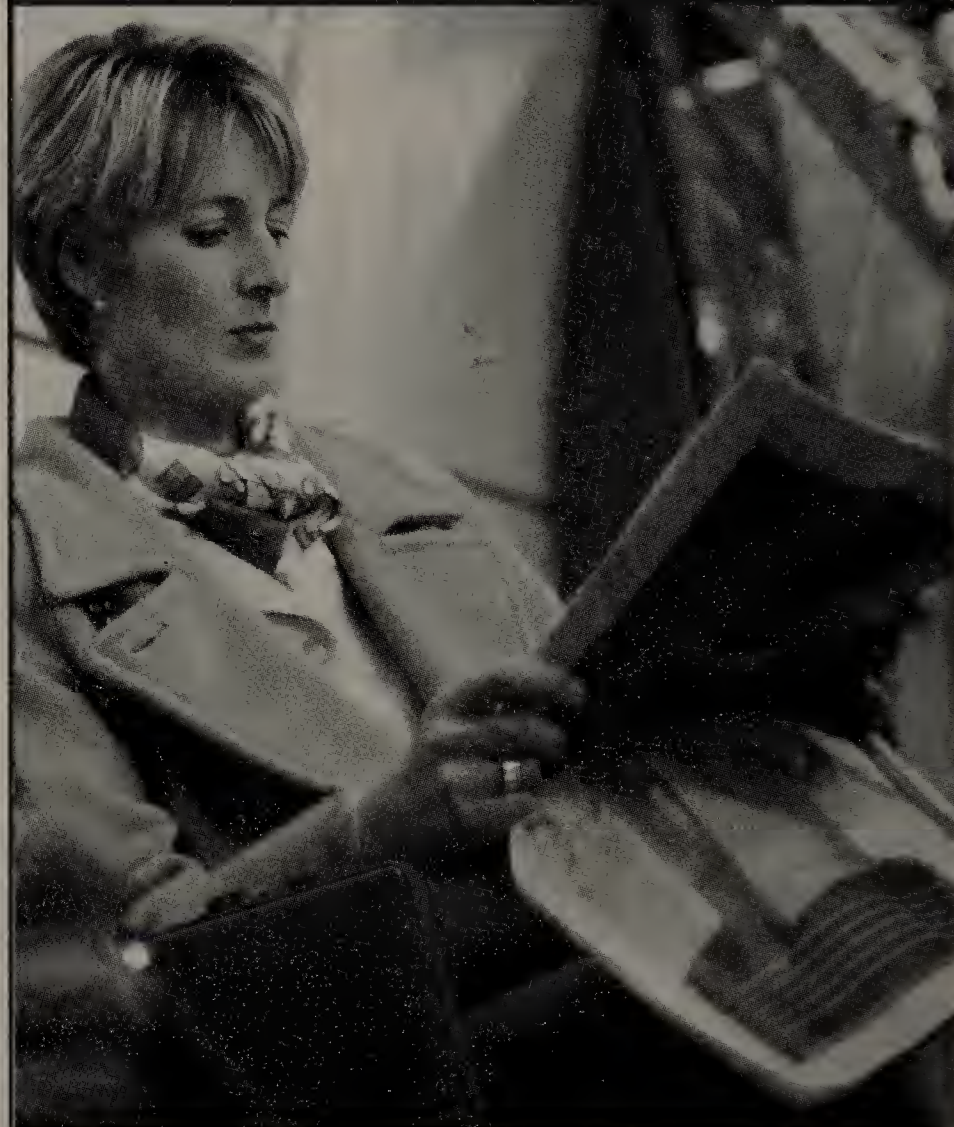
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Software Engineer to analyze, design, develop and test client server enterprise applications using J2EE, Java, C++, Servlets, JSP, XML, HTML, CORBA, Oracle, Websphere on Windows and UNIX operating systems; generate code from client requirements using Visio 2000 and UML; evaluate and enhance performance of enterprise application using JProbe Suite and automate testing process using WinRunner. Require BS or foreign equivalent in CS/Computer Engg with 3 yrs of exp in IT. Competitive salary, F/T. Resumes to CyberObject, 3050 Business Park Drive, Suite A-1, Norcross, GA30071

C & G Pharmacy LLC (Houston, TX) is seeking a Computer Support Specialist using Radio Frequency Sensing and Ultrasonic Detecting Technologies. 6 mon. exp. Mail resume to 11618 Aldine Westfield, Houston, TX 77093 or 281-442-1432(F). Attn: Sunny Chin.

Seismic Micro-Technology, Inc. seeks a Geosciences Software Quality Assurance Tester to analyze and test seismic software. M.S. 1 yrs. exp. in using geosciences software. Send resume to 8584 Katy Fwy, #400, Houston, TX 77024 Attn: Manager of HR or 713-464-6440(F).

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Internet Development Analyst. Responsible for planning, developing and deploying eBusiness applications and technologies in support of Roche's business activities. Specifically: Developing new web applications, as well as extensions, modifications and interfaces to existing eBusiness applications; Providing technical expertise and analysis support to customers wishing to make use of eBusiness technologies, Performing process analysis, design of application architectures, code writing and unit testing; Leading large development projects requiring in-depth knowledge of complex development languages, function and interface design; Communicating and coordinating with end users, contractors, system administrators and other development or maintenance personnel Prior experience must include database migration and development of multiple e-commerce web applications. The position requires an BS in Electronics or Computer Engineering and 5 years in the job offered or 5 years of program/system analysis. Submit resume and social security number to: Kathy Sanders, Roche Diagnostics, 9115 Hague Road, Indianapolis, IN 46250. No phone calls please.

Health Systems Analyst Programmer I to develop and support advanced healthcare software applications in a highly distributed environment, provide real-time connectivity to proprietary clinical repositories, serve as technical lead on Intranet development, and provide development for the electronic messaging system. Requires: Master degree in Computer Science, at least 24 months experience in programming. Must have advanced background experience in using the Perl programming language to provide connectivity to MySQL databases and Common Gateway Interface applications. Must have strong experience with generating PNG (Portable Network Graphics) for real-time visualization of clinical data. Must have advanced experience with Javascript, HTML, DOM, CSS, and XML. Needs to be willing to provide 24x7 support for mission-critical applications. Should be familiar with the clinical environment. Medical research experience is also required. Please send resume to Dario Giuse, Vanderbilt University, Eskind Biomedical Library 4th floor, 2209 Garland Ave, Nashville, TN 37232-8340.

Software Professionals in programming/analysis, systems analysis, QA engineering & testing, software engineering, systems administration, and related fields at all levels, including project lead and manager, with relevant bachelor's degree/equivalent. Also seeking Business Development Managers, Business Developers, Business Analysts, Market Research Analysts, Sales Engineers, Technical Resource Management professionals (several levels, Associates/Sr.Executives/Manager)/Senior level positions require graduate degree/equivalent. May be relocated for short and long term assignments throughout the U.S.A. Zensar Technologies, Inc., One North LaSalle, Suite 3650, Chicago, IL 60602. Send resume & cover letter detailing position sought & relevant experience to balu@usa.zensar.com. Please quote reference CW/Zensar in all your mails.

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Medical Device Software Engineer sought by Medical device dvlp to work at Ann Arbor, MI facility. Will research, dsgn & dvlp complex comp s/ware systms in conjunction w/hardware product dvlpmt for medical applcs by applying principles & techniques of comp sci, engg & mathematical analysis. Will be responsible for maintenance of existing systm s/ware incl debugging, testing & implmtg necessary improvements. Req Master's in Comp Sci/Engg or Electrical Engg & 6 yrs of s/ware dvlpmt exp incl 3 yrs exp in medical device arena. Interested candidates send resume to Leslie Wild, HR Generalist, Terumo Heart, Inc., 6200 Jackson Rd., Ann Arbor, MI 48108.

Business Program Applications Analyst. Analyze, define & design complex business processes for application to electronic data processing systems, both at the local unit & the enterprise levels. Lead complex projects & provide direction to others in performing: Systems analysis, applications programming, database administration, business process analysis, & systems specialization. Requires B.S. in Business Administration, Commerce or Information Systems. Also need 2 yrs performing enterprise resource planning with software such as J.D. Edwards programs. 8:00 - 5:00, M-F. Must have proof of legal authority to work indefinitely in the U.S. Submit resumes to: S. Ardelean, HR Manager, BorgWarner Inc., 3800 Automation Avenue, Auburn Hills, MI 48326

Unica Corp. a leading provider of Enterprise Marketing Management Solutions, is looking for a qualified Software Engineer to work with enterprise applications and n-tier architectures to develop Java-based, next-generation enterprise marketing applications. Must have a Bachelor's degree in CS, Engineering or similar field and relevant advanced study, research or experience in web applications development. Requires JavaScript, Java, JDBC, XSLT, Servlets and Java Security Frameworks: UI, database and middleware; DB2 and Oracle; Windows and UNIX (Solaris) operating systems. Forward resumes to Job code #5, Human Resources, Unica Corp., Reservoir Place, North 170 Tracer Lane, Waltham, MA 02451, or e-mail: careers@unica.com

Project Managers to lead/manage teams to study, analyze, customize and develop Portal intranet billing appls using C, Pro-C, Oracle procedures, triggers, Unix shell scripts etc; lead teams to develop custom GUI tools in VB using portal COM objects; mentor in development of Oracle triggers, packages, procedures, view and pro-C for data retrieval/data migration; evaluate, test, train team members. Require MS (or foreign equiv) in CS/Computer Engg & 1 yr exp in portal intranet billing. F/T. Competitive salary. Travel involved. Resumes to HR, Intercall, Inc., 1211 O.G Skinner Drive, West Point, GA31833. Please refer Job IC11104.

Programmer Analysts Needed. Seeking qual. candidates possessing BS/ equiv. & rel work exp. Duties include: Plan, develop, & analyze applications. Code, test & debug programs. Work with at least 2 of the following: Tuxedo, Corba, Visual Basic, Java, and J2EE. Fwd. res., ref. & sal. req. to UBICS Inc., Attn: HR, 333 Technology Dr., Ste. 210, Canonsburg, PA 15317.

Programmer Analysts to analyze, develop appls using C, C++, Java, XML, VBScript, VB, HTML, SQL, etc; use Mercury Win Runner & Load Runner to provide automated functional/ regression testing, performance load and stress testing for web based appls; interact with clients, end users for reqs gathering, analysis, planning & implementation; modify and debug existing software appls. Require BS or foreign equiv in CS/Engg (any branch) with 2 yrs of exp in IT or an MS or foreign equiv in one of the above fields. F/T, competitive salary. Travel involved. Resumes to: HR, Semafor Technologies, Inc., 3300, Holcomb Bridge Road, Ste212, Norcross, GA30092.

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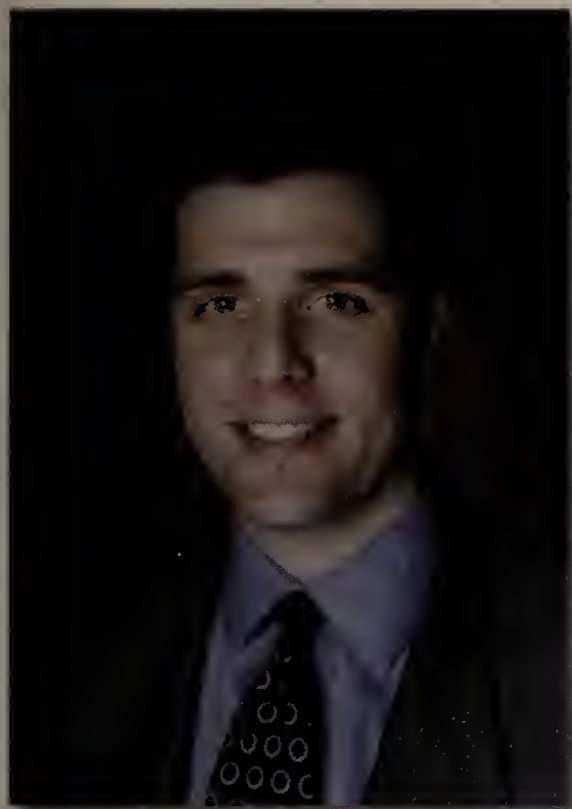
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In late 2003, the company realized that Forbes.com had outgrown its data center. In December, Forbes.com prepared to move to a new center that could better accommodate its growth.

"There was absolutely no question that we were going to stick with the Avalanche!"

"We'd been in our existing site for four years and had outgrown it," says Michael Smith, vice president and COO of Forbes.com. "We were upgrading our hardware to new Foundry Networks core routers and switches and our software to Linux, so we had a chance to start fresh and make sure the site became faster and more scalable. We want to ensure that

the user experience is as responsive when we're experiencing high traffic on an atypical list release day as it is on a regular business day."

To ensure the cutover would be successful, Forbes.com decided to test the stability and availability of its new Web infrastructure with the Avalanche 2500 load-testing appliance from Spirent — a product the company had used to test its Web site since 2001. "There was absolutely no question that we were going to stick with the Avalanche," Smith says.

As one of the top business sites on the Web, Forbes.com gets a high volume of traffic on a daily basis. However, that traffic level spikes on the days that the site releases its lists. In addition, Forbes.com adds new functionality every week to the 150-plus applications that run the site. The company can't afford for its site to be down, because visitors will simply click over to a competitor's site.

"It's critically important that we constantly test the site to ensure that it has the scalability to handle both surges in traffic and the addition of new software," Smith says. "We need a tool that can push traffic far beyond what we think we'll get, so we can analyze our upper limits and anticipate where things might break."

Optimizing TCP Throughput

During the tests on Forbes.com's new data center infrastructure, the team used the Avalanche test appliance from Spirent Communications to generate a mix of users and traffic rates that emulated the expected traffic on Forbes.com. The test team configured the Avalanche to simulate 30,000 concurrent users and 12,000 to 15,000 hits per second while the site served up more than 400 Mbps of content.

Through Avalanche testing, the team discovered that throughput was below acceptable levels, with the site serving only a fraction of the required pages. By testing with Avalanche, they identified the potential breaking point of the new site.

The team quickly set up tests to identify the limiting performance thresholds across several metrics — bandwidth, transactions per second and concur-

rent users. Once the bottlenecks were identified, it was revealed that the Forbes.com traffic mix had been constrained by servers that were accepting a low rate of new TCP connections.

The servers in the new data center had been tuned to create more TCP connections than the previous process could actually thread. By re-tuning the new servers to deliver a higher level of TCP throughput, a more robust user experience was achieved.

"We used the Avalanche to test the limits of the new site until we felt that it was ready to flip," Smith says. "When we cut over, we had every confidence that it would run perfectly — and it did."

Flawless Performance

After optimizing the Web servers, Forbes.com used the Avalanche to test its application servers, the performance of hardware devices such as load balancers and even the failover site. When the day came to switch over to the new site, Forbes.com felt completely secure that the new Web infrastructure could handle the demands of real-world traffic.

"We used the Avalanche to test the limits of the new site until we felt that it was ready to flip," Smith says. "When we cut over, we had every confidence that it would run perfectly — and it did. The enhanced reliability and performance achieved through Avalanche testing has delivered immeasurable value. By helping us prevent downtime, Avalanche saves us both time and money."

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Offshoring remains hot issue for IT

■ BY JENNIFER MEARS

Corporate users in growing numbers are turning to offshore services providers as a way to cut costs, boost efficiencies and focus domestic IT staff on more business-related tasks, analysts say.

According to Gartner and IDC, both of which issued predictions for 2005 last week, the market for offshore IT services will more than double from about 3% of overall IT services spending to between 6% and 7% of overall spending in the next three years. Gartner expects offshore IT services spending to reach \$50 billion by 2007.

Along with the growth comes an expansion in the types of services that offshore providers will offer as the market matures, analysts say.

A research note IDC published in October said the use of offshore providers for application-related services would grow at a particularly fast rate.

The research firm says offshore IT service providers attracted about 11% of U.S. spending on custom application development, systems integration and application management services in 2003. The 2004 percentage is expected to reach 17%, and by 2008 nearly a quarter of U.S. spending on application development, integration and management services will go to offshore providers, IDC says.

While companies typically send low-end application-related services such as maintenance and coding offshore today, the complexity of services that offshore providers deliver will deepen, analysts say.

"Offshore competencies will continue to move upstream into" business process outsourcing, Frank Gens, senior vice president of research at IDC, said during a conference call discussing the 2005 predictions. "We're talking about things like CRM and call centers being the focus, finance and accounting, in addition to remote infrastructure and application management. It's already happening... We're going to see acceleration in those areas in 2005."

The trend of using offshore providers is creating a new business environment for corporations that must consider their IT decisions from a global perspective, says Frances Karamouzis, a research director at Gartner.

"Every task has to be decoupled from the overall process, and the company has to be asking essentially, 'Am I getting the best prevailing global price for this particular competency regardless of where it resides in the world?'" she says. ■

10G-earing up

HP and Alcatel are launching 10G wares this week, with more to come in the new year.

Product	Description	Price	Availability
HP ProCurve Edge Fabric switches	Eight- and 16-port LAN core switches with 10G and Gigabit support	Not available	Q2 2005
HP ProCurve 6400 series	Eight-port 10G switches for LAN aggregation	\$7,300 for CX-4 copper; \$42,790 for fiber	Now
Alcatel OmniSwitch 6800 series	24- and 48-port workgroup switches with 10G uplinks	\$4,500 to \$7,500, plus \$5,000 for 10G uplinks	Now

HP

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had been developing an enterprise switch with redundant fabrics and aimed at high-bandwidth LAN backbones.

"It's a bold idea," says Max Flisi, an analyst with IDC on the Edge Fabric concept. "The one caveat for them will be how to present this to customers." With Cisco and its competitors constantly packing features into switches, selling boxes for the LAN core with an emphasis on simplicity might be tough. "People may have invested money in building an intelligent infrastructure [in the core]. Then to have [HP] saying that that is not useful anymore . . . might scare some people."

The Edge Fabric switches should boost HP's momentum in the modular LAN switch market, observers say. According to Synergy Research Group, HP was second to Cisco in the number of modular switch ports shipped in the first half of 2004 (with

9.4% vs. Cisco's 74% market share). HP sold more modular switches than rivals Enterasys Networks, Extreme Networks, Foundry Networks and Nortel by almost three-to-one. HP's modular switch ports also average about 70% less than the industry-average cost for a modular switch port Synergy says.

HP this week also is debuting a new LAN aggregation switch with all 10G connections. The ProCurve 6400 series includes two eight-port boxes with either all copper (10GBase-CX4) or fiber (10GBase-LX) connections.

The boxes are aimed at aggregating 10G uplinks from wiring closets, or for connecting data center switches or servers. HP also announced the availability of 10G Ethernet network adapters — from S2IO — on its 9000 PA-RISC and Integrity Itanium servers.

Also on the 10G front this week, Alcatel is introducing a family of Layer 3 workgroup switches called the OmniSwitch 6800 that feature 10G bit/sec uplinks.

The OmniSwitch 6800-24 has 24 10/100/1000M bit/sec Ethernet ports, with four of those ports configurable for copper or

fiber uplinks. It is designed to be complementary to the OmniSwitch 6800-48, a 48-port switch with a slot for optional one- or two-port 10G bit/sec uplinks. Up to eight of these two-switch models can be stacked in any mix to give customers needed port density.

The new switches let Alcatel users link a wiring closet directly to a core LAN switch with 10G Ethernet. Competitors 3Com, Cisco, Enterasys, Extreme, Foundry and HP announced similar offerings earlier this year.

The average corporate wiring closet supports between 80 and 90 access ports and two uplinks, says Brian Witt, director of product marketing for Alcatel's LAN switching, so these switches can meet this mainstream need.

The third switch in the family is the OmniSwitch 6800-U24 with 24 access ports that can be either fiber or copper. A slot on the box can be filled with either the one- or two-port 10G bit/sec uplink card. Witt says Alcatel envisions this as an aggregation switch to pull together traffic for passing on to core switches and routers. For smaller networks, the OmniSwitch 6800-U24 could act as a core switch, he says. ■

Buzz

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was a thing called "The Nifty 50." It was a set of application templates that were starter apps, so to speak, that were built on top of Notes 3. It bridged a lot of people into understanding and they just started to build more things.

In Release 4.5 e-mail and calendaring became world-class. It was concurrent with the release of [Microsoft] Exchange, and it suddenly set in motion thousands of companies putting out RFPs for e-mail systems and then picking one, either Exchange or Notes.

The last major event is in '95 when IBM bought Lotus. People don't realize this, but we had shipped about 2.2 million seats of Notes before IBM, and IBM rapidly jacked that up to 100 million-plus.

What was your reaction when it was first made clear to you that IBM was going to buy Lotus?

[IBM CEO Louis] Gerstner looked me in the eye one-on-one and said, 'Ray, we're not going to spend \$3 billion on Notes, \$3.5 billion on Lotus, to screw it up, so stick around and we'll make it what you wanted it to be.' I was willing to give

them a chance because it was extremely genuine. No, I didn't like the fact that Lotus was losing its independence, but so many people had put so much love into that product for so long that we wanted to give it a chance. And they did what they said they were going to do.

What's your sense as to whether Notes will continue on as an independent product?

IBM has a history of never forcing its customers through tremendous changes; there are S/360s out there that are still cranking along. So I don't see that they would do something so reckless as to stop something. What's very clear is that Notes has transitioned into a cash cow; it's not at the leading edge of their initiatives. Workplace is at the leading edge, and they would like to for very pragmatic business reasons sell more DB2 and Websphere and the things that they regard as more contemporary technologies than Notes. So I think you'll see a lot of marketecture that unifies two architectures, and you'll see active selling efforts on the newer stuff. The older stuff will gracefully stabilize.

We should all be so lucky. Comments to buzz@nww.com.

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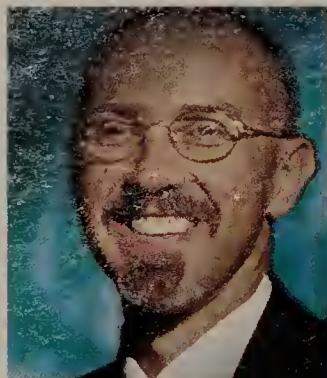
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BackSpin Mark Gibbs



And the winner is . . .

A couple of weeks ago I listed my top 10 contenders for the Gibbs Institute's Thanksgiving Golden Turkey Award (www.nwfusion.com, DocFinder: 4950).

The nominees were 1) The SCO Group, 2) the FCC, 3) mail servers that send non-delivery notifications, 4) CompUSA, 5) AT&T Wireless (aka Cingular) customer service, 6) the Motion Picture Association of America (MPAA) and the Recording Industry Association of America (RIAA), 7) Microsoft, 8) Sun, 9) voting machine manufacturers and 10) every printer manufacturer that uses non-refillable cartridges. I asked you to pick the winner and the tens of thousands of responses were very interesting.

From Italy (Backspin is molto international, you know), reader Jeff Daniels found it hard to choose between SCO and Microsoft, and in the end he plumped for SCO.

Chris Lunde voted for one of my favorites, CompUSA: "You are spot on with your assessment. I cannot count how many times I've just walked away shaking my head about those sales droids."

Dariana Lau was brief and to the point: "My vote: The SCO Group. Good riddance!"

Bill Dannon was torn but ultimately decisive: "I think it's a dead-heat between No. 6, No. 7, No. 9 and

No. 10, but I'll have to vote for (or should I say against) the voting machine manufacturers."

Dannon's reason: "if I am compelled to cast a ballot through a dubious mechanism — controlled by a company that has openly supported one candidate over the other — that's turning democracy into farce."

Dean Weaver chose Microsoft but his gripe was about a different issue: "Let's not forget Microsoft and their Xbox Live. To get it you pay \$50 at the store for a one-year subscription. After buying it you have to sign up through the Xbox and give them a credit card that they will use to automatically renew your subscription after one year."

He says he immediately tried to cancel the renewal but Microsoft told him the only way it could do that was to turn off the service even though it was already prepaid for a year.

Weaver went on, "They said it's the only way the system could do it. Can you believe that from the biggest software company on Earth! Then after the year is up and you want to cancel, you think you could do it on the Xbox you signed up with, but no, you have to find a well-hidden phone number to call them and cancel."

Interesting that Microsoft's business practices in this area look remarkably like a cross between AT&T's brain-dead customer service and the printer

manufacturers' cartridge-selling scheme. Leave it to Microsoft to go that extra yard.

"I think all are deserving," wrote Charles Ashbacher, "but the MPAA and RIAA are the winners. A business model based on legal suits against your customers is unsustainable."

Ashbacher pointed out that "they learned nothing from the legal action over VCRs [that] went all the way to the Supreme Court and the Court struck it down. Forced to live with the reality of VCRs, the [movie] industry incorporated them into their business model and made an enormous amount of money from video sales. Had they had the sense to use it to their advantage rather than litigate against it, the numbers would have been even better. The same reasoning applies here."

Finally, reader Will Rigby responded with "root@localhost \$ cat dreams I backspin@gibbs.com," pointing out "You said to pipe dreams to backspin@gibbs.com!"

Thanks to all who wrote. Using our advanced statistical sampling and analysis system, we conclude that the winner of the Gibbs Institute's Thanksgiving Golden Turkey award is . . . ta-ta — ta-da-da . . . shared by Microsoft and SCO.

Steve and Darl, get in touch at backspin@gibbs.com. Your prize is a turkey dinner cooked by me.



'Net Buzz News, insights, opinions and oddities

By Paul McNamara

Happy birthday, Ray

Lotus Notes turns 15 tomorrow. Iris Associates, the software development

company from whence Notes emerged — on the Lotus dime — was founded five years earlier to the day. That's reason enough to get Ray Ozzie on the phone, given he was the headliner for both productions before leaving Notes Nation in 1997 to start Groove Networks. What follows are the highlights of our chat, with a longer version to be found at www.nwfusion.com, DocFinder: 4949.

Do you ever get tired of talking about Notes, maybe the way singers get sick of doing their big hit?

That's funny . . . I don't get tired of talking about it, depending on the conversation and which way it's spinning. I get a chance to surf off of it into my current passions and what I'm talking about now, and I hope it doesn't sound like the song that nobody wants to hear.

Take us back to the day you trotted out Notes 1.0?

At the time Notes was launched, Dec. 7, 1989, we had one customer — Sheldon Laube from PriceWaterhouse — who shared our vision. He understood enough about it, and he's a great communicator, much better than we were about the value of Notes at the time.

This was an era of re-engineering the corporation. It was a very fortuitous time for Notes to be coming out because people were just using LANs for printer sharing, and they could now leverage that simple technology for lightweight processes within the enterprise. By '95 or so the leading-edge companies started to try to use [Notes] outside the company, not just inside. We take this for granted now, but it was fairly interesting and turned out to be difficult because Notes, in particular, was designed for centralized management.

That was ultimately what led me to leave and start Groove. Whereas Notes was more about the changing nature of the organization, Groove was about the changing nature of business in general.

When did you know you had something big with Notes?

I'll say something that lets you see a little bit about my personality: I knew we had something before we started the company.

Looking back, were there any aspects of Notes that you had spot on from the beginning — or missed?

We missed — but I missed clearly — the immense value in simple publishing. When I first saw the Web — Mosaic — I am ashamed to admit that I said to myself, this is so trivial, it's got no security, you can't authenticate, the server doesn't know who the user is — so all you can do with this is simple publishing. I should have foreseen earlier on in Notes the value of a simpler, anonymous client/reader that could have been used for a much broader set of applications than it was initially.

One of the things we got right . . . is the respect for offline use and mobility. You have to know from Day 1 when you're building a system that you want to treat mobility as a first-class problem. I think we got that so right, and it amazes me to this day that more people haven't gotten it right.

Why do you think that is?

It's hard, and you can't add it on, particularly the integration between the storage, communications and security.

Are there milestones through the early years of Notes that you thought particularly important?

This is not widely written about but I think customers understand it: There

See Buzz, page 72

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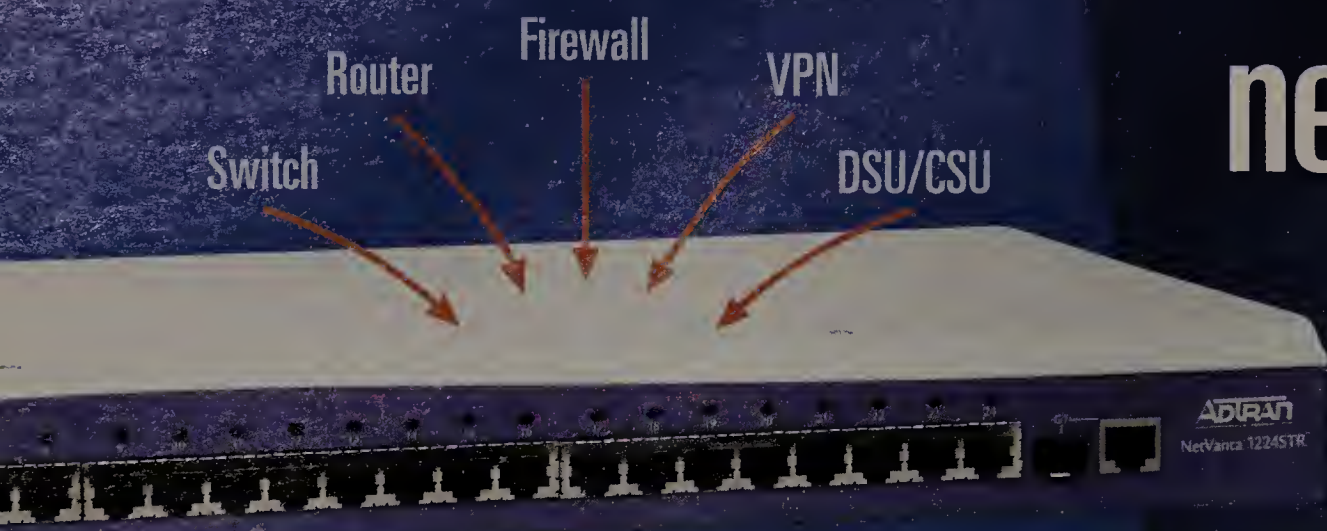
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